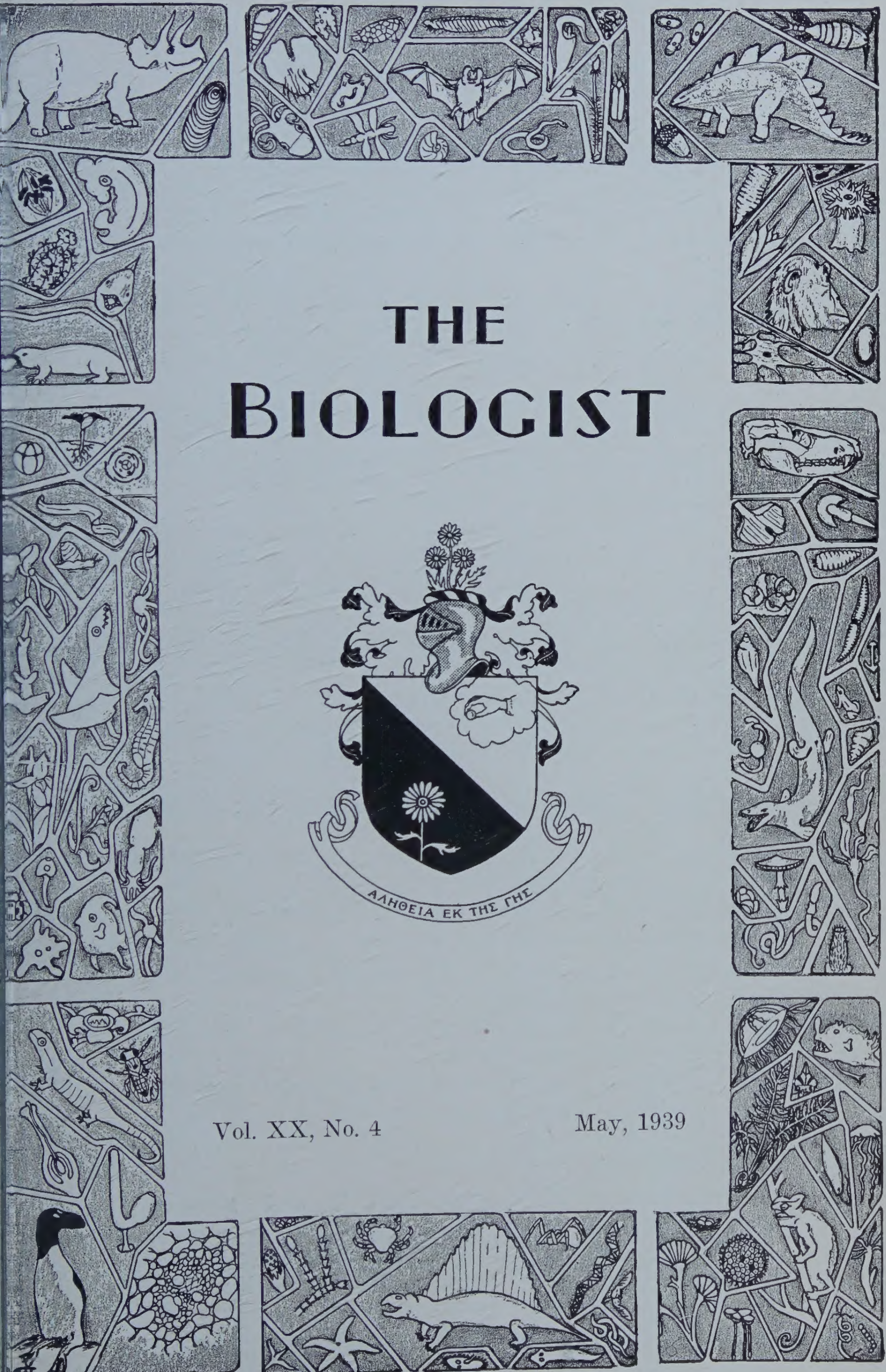
FEATURING PITTSBURGH



THE BIOLOGIST

Vol. XX, No. 4 May, 1939

CHAPTER NEWS NUMBER

PHI SIGMA
BIOLOGICAL HONOR SOCIETY

"The object of Phi Sigma is to promote interest in biological research. Although originally designated as an honorary biological research society, it should now be considered as a working guild of biologists interested in research. In effect, election to Phi Sigma should be an opportunity for better work, rather than merely election to an honorary society."

Mile Posts:

1915	March 17, Alpha Chapter organized, Ohio State University.
1916	May, Central Governing Body organized, BIOLOGIST first issued.
1917	June, last War-time BIOLOGIST issued.
1921	February, BIOLOGIST revived.
1924	December, First National Convention, Constitution revised, Washington, D. C.
1925	December, Second National Convention, First Scientific Program, Kansas City.
1926	December, Third National Convention, Second Science Program, Philadelphia.
1927	December, Third Science Program, Nashville.
1928	December, Fourth National Convention, Coat-of-Arms adopted, Fourth Science Program, New York.
1930	January, Council Meeting, Ritual Revised, Norman, Okla. December, Fifth National Convention, Fifth Science Program, Cleveland.
1931	Phi Sigma Letters Registered, U. S. Patent Office.
1932	December, Sixth Science Program, Atlantic City.
1933	June, Sixth National Convention, Seventh Science Program, Chicago.
1935	December, Seventh National Convention, Eighth Science Program, St. Louis.
1937	December, Eighth National Convention, Ninth Science Program, Indianapolis.

Expansion:

The Constitution provides that: "An active chapter may be established in any institution of learning which requires for graduation the equivalent of four years of collegiate work, and which is equipped with facilities for research work. - - - - Any petitioning group must be active for at least one year before it may be granted a charter."

THE BIOLOGIST

Vol. XX Denver, Colo., May, 1939 No. 4

Copyright 1939 by the Phi Sigma Society, an organization devoted to the promotion of interest in biological research, founded at Ohio State University, March 17, 1915. The Biologist is the official quarterly publication of the society, issued ordinarily in October, December, February and April, as a medium of exchange between chapters, as an interpreter of Council policies, and as a stimulus to the fellowship in science for which Phi Sigma stands.

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DIRECTORY

OF ALL ACTIVE AND INACTIVE CHAPTERS

The list of chapter officers will be found in the CHAPTER NEWS section

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ALPHA

Ohio State University, Columbus, Ohio, founded March 17, 1915, (Inactive).

BETA

University of Michigan, Ann Arbor, Michigan, founded June 3, 1916.

DELTA

University of Maine, Orono, Maine, founded January 27, 1917.

EPSILON

University of Denver, Denver, Colorado, founded March 5, 1917.

ZETA

University of Wisconsin, Madison, Wisconsin, founded May 30, 1917.

ETA

University of Akron, Akron, Ohio, founded April 20, 1921.

THETA

Michigan State College, East Lansing, Michigan, founded April 9, 1921.

IOTA

Washington University, St. Louis, Missouri, founded May 28, 1921.

KAPPA

University of Kansas, Lawrence, Kansas, founded May 31, 1921.

LAMBDA

University of Montana, Missoula, Montana, founded May 4, 1921.

MU

University of California, Berkeley, California, founded April 27, 1922.

NU

Washington and Jefferson College, Washington, Pennsylvania, founded May 11, 1922.

XI

University of Nebraska, Lincoln, Nebraska, founded May 3, 1934.

OMICRON

University of North Dakota, Grand Forks, North Dakota,
founded May 26, 1924, (Inactive).

PI

Emory University, Georgia, founded January 3, 1925.

RHO

University of Illinois, Urbana, Illinois, founded March 28, 1925.

SIGMA

University of Florida, Gainesville, Florida, founded December 4, 1925.

TAU

Duke University, Durham, North Carolina, founded March 4, 1926.

UPSILON

Miami University, Oxford, Ohio, founded May 7, 1926.

PHI

University of New Hampshire, Durham, New Hampshire, founded May 21, 1926.

CHI

Montana State College, Bozeman, Montana, founded February 11, 1927.

PSI

University of Washington, Seattle, Washington, founded April 7, 1928.

OMEGA

University of Oklahoma, Norman, Oklahoma, founded March 24, 1928.

ALPHA ALPHA

University of Southern California, Los Angeles, California, founded May 17, 1930.

ALPHA BETA

Mount Union College, Alliance, Ohio, founded May 17, 1928.

ALPHA GAMMA

University of South Dakota, Vermillion, South Dakota, founded May 15, 1928, (Inactive)

ALPHA DELTA

Lawrence College, Appleton, Wisconsin, founded March 7, 1929.

ALPHA EPSILON

University of Pittsburgh, Pittsburgh, Pennsylvania, founded March 23, 1929.

ALPHA ZETA

College of William and Mary, Williamsburg, Virginia, founded April 19, 1930.

ALPHA ETA

Oklahoma Agricultural and Mechanical College, Stillwater, Oklahoma, founded March 13, 1930.

ALPHA THETA

State College of Washington, Pullman, Washington, founded May, 1930.

ALPHA IOTA

Bucknell University, Lewisburg, Pennsylvania, founded January 9, 1932.

ALPHA KAPPA

Hunter College, New York City, founded January 8, 1932.

ALPHA LAMBDA

University of Utah, Salt Lake City, Utah, founded February 13, 1932.

ALPHA MU

University and State Agricultural College of Oregon, Eugene-Corvallis, Oregon, founded November 18, 1933.

ALPHA NU

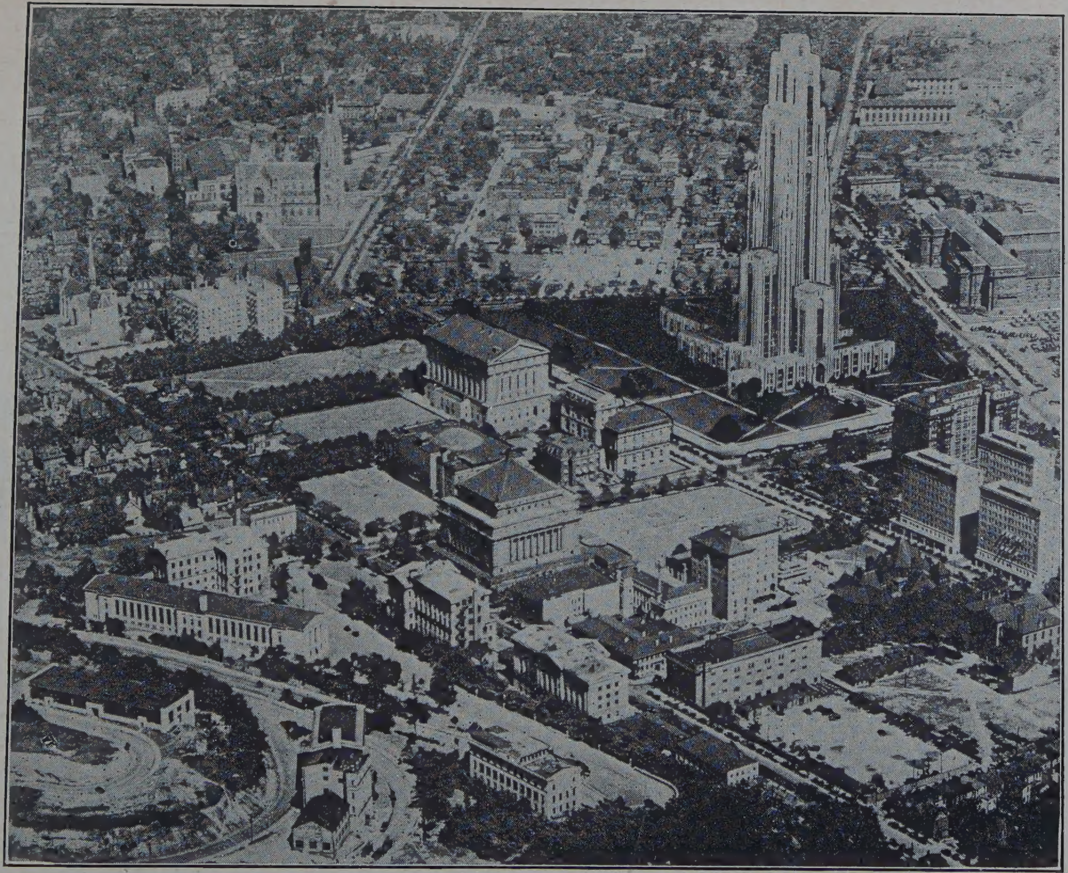
University of New Mexico, Albuquerque, New Mexico, founded April 21, 1935.

ALPHA XI

Rhode Island State College, Kingston, Rhode Island, founded May 17, 1935.

ALPHA OMICRON

Marquette University, Milwaukee, Wisconsin, founded June 18, 1938



Cathedral of Learning and other University of Pittsburgh Buildings in Lower Left Corner

THE UNIVERSITY OF PITTSBURGH

After building their homes and a trading post at the junction of the three rivers, the early Western Pennsylvania pioneers felt the need of a school which would continue and preserve the wisdom of the Universities they had known across the sea. As a result they petitioned the General Assembly of Pennsylvania to charter the Pittsburgh Academy for higher education. The University of Pittsburgh was born in a log building February 28, 1787.

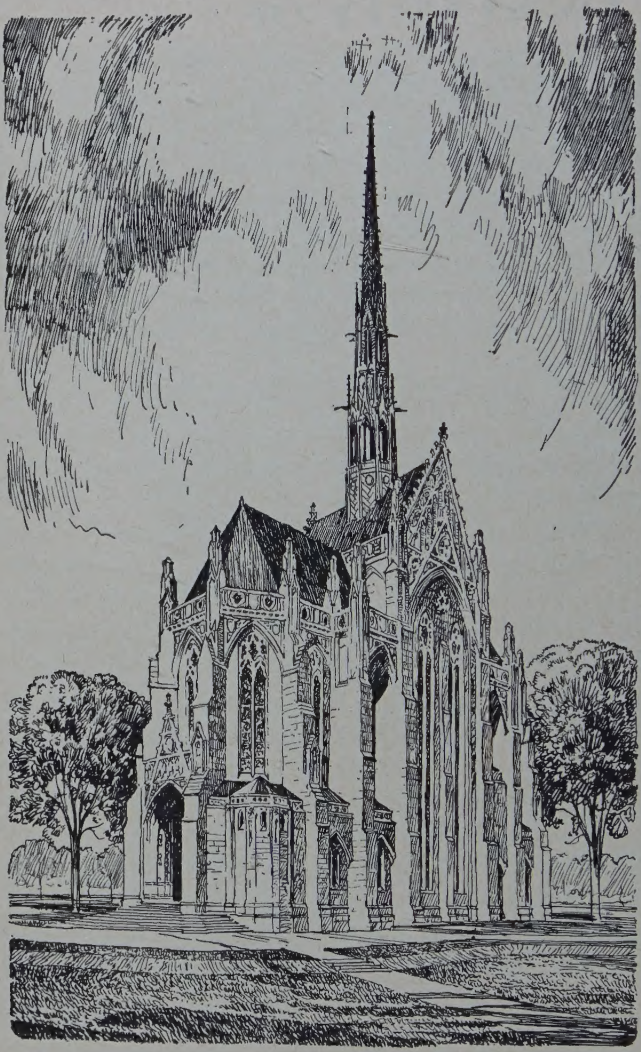
In order to promote the best interests of the new college "the charter provided for the cooperation of the commonwealth and set up a self-perpetuating board of trustees composed of men interested in the common good".

Revering God, educating youth, building a democracy, and making a living were the things necessary at this time. "They were *life* in Pittsburgh in 1787. The substance of these ideas and of these hopes was the substance of the Academy in Pittsburgh. It is the substance of the University of Pittsburgh."

The Academy grew and in a little over thirty years the Pittsburgh Academy became the Western University of Pennsylvania. Along with this growth we find the need of the people increasing. This need led to the broadening of the curriculum. Around the traditional core of learning the people found courses on the development of electricity, glass, aluminum, steel, and coal, as well as those on law, engineering and medicine being added.

The big fire of 1845 changed the original site of the School from Third Street to Duquesne Way. The fire of 1849 caused the classes to be suspended until 1855. Then classes were held in a building on the corner of Ross and Diamond. In 1882 it was moved to Allegheny City which is now the North Side of Pittsburgh. In 1908 what had now become the Western University of Pennsylvania was moved back across the river to Oakland and its name was changed to the University of Pittsburgh.

The University has grown from its humble beginnings until we now have the following Schools:—Medicine, Law, Mines, Dentistry, Pharmacy, Alleghany Observatory, Business Administration, Education, Graduate College, Summer Session, Applied Social Sciences, Evening School and the Extension Division, and Mellon Institute.



Heinz Memorial Chapel

THE NATIONALITY ROOMS

The botanist, while inspecting the nationality rooms of the Cathedral of Learning, will be surprised to see how flowers, fruits, and seeds—how many roots, stems and leaves—have been carved, painted, sculptured, woven, wrought or inlaid in every conceivable design. His

Scottish Rooms

surprise will be greater when he learns that none of the rooms was intentionally planned with botany as the basic design.

In the Scottish room, for example, thistles throw out upright blooms and spiny leaves from the white moulded ceiling, from oak panels, from the carved dedication stone, from the design in the fire irons, and even from colored glass in the Edinburgh coat of arms. "The frieze incorporates the symbols of each of the Scottish clans which have sponsored the Scottish room." Three-fourths of these symbols are floral patterns: heather, juniper, oak, pine, holly, rowan, box, ivy, myrtle, and thistle.

On the ceiling and rear panel of the Swedish room are representations of familiar flowers and fruit, and in the window living plants placed

Yugoslav Class Room

there by the donors of the room. The whole room reminds one of Sweden's Linnaeus.

Upon entering the German room one is likely to be impressed by the richness of the color of the lumbers that were used in the room and by the quietness and mood that these woods create: walnut doors with carved arabesque columns, walnut walls and ceiling, oak floor and oak chairs and table, and inlaid woods of various kinds and colors. A flower, bud, and leaf design makes up the pattern for the classical chandeliers. The names of famous Germans are carved in wood above the panels. The botanist scans all of them but lingers at two: Humboldt and Koch.

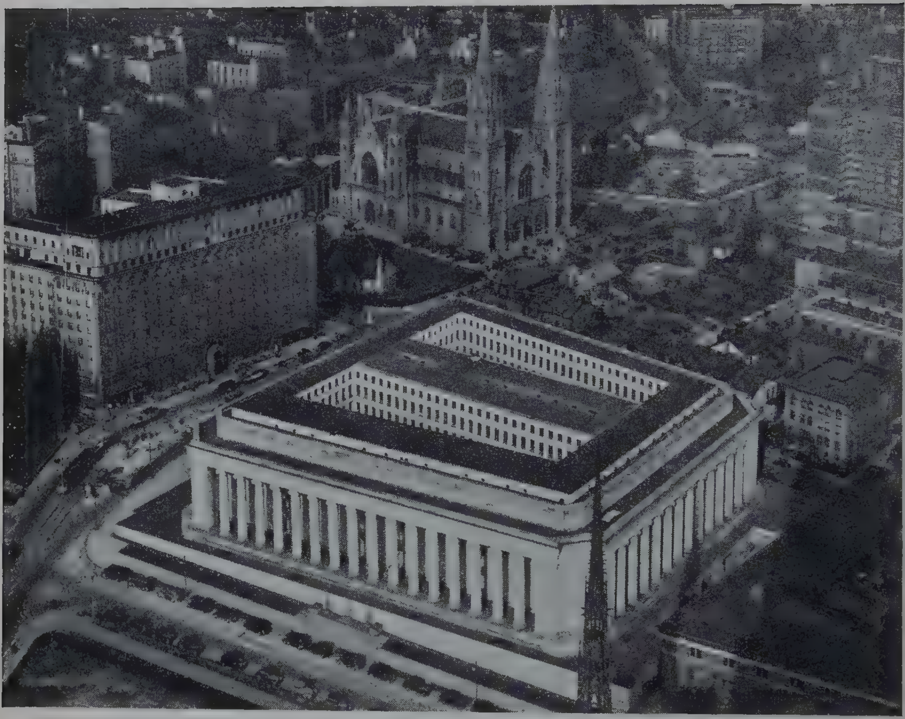
In each corner of the ceiling of the Russian room is a moulded flower design symbolic of the four seasons: in the mould above the door is autumn, symbolized by the grape; opposite this is winter with a branch of pine; spring and summer are on the other end of the room, spring represented by a closed bud and summer by an open bloom.

In the ceiling of the Czechoslovak room the floral designs are done so realistically that the student of the fields can almost feel the push of the wind at his back. These flowers are painted with precision of line and true color. The lumber on the side walls is larch, "a characteristic wood of the Carpathian Mountain valleys in Slovakia". That is the reason then, he thinks, for the branch and blossom of the larch on the top limbs of the decorative trees painted on the walls of the window; for the larch on the top branch of the tree of life on the rear panel; for the triangular inlay of larch in the desk top and the inlay of the same leaf and blossom in the top beam of the door. The inlay panels of the bottom of the desk are examined and he again marvels at the lines of beauty in an inlaid microscope, for to the botanist the microscope stands only as an instrument of hidden secrets and higher learning.

Mellon Institute

The Mellon Institute of Industrial Research is located in its new home, covering an entire city block, adjacent to the University campus. Dr. Edward R. Weidlein, Director of the Institute is a trustee of the University, and affiliations between the two institutions have been close ones.

Dr. Weidlein states that the "Mellon Institute has four functions, namely: it is an industrial experiment station, a training school for industrial scientists, a centre for investigation in pure as well as applied chemistry and a clearing house on specific scientific information for the public. Its services are seen in numerous discoveries, the successful processes and products, achieved under its auspices, and in the regiment



Mellon Institute

of keen research men who have acquired specialized knowledge and experience that they are now applying usefully in other fields.''

In 1937-38 there were seventy-two Industrial Fellowships in operation at Mellon Institute. During that time Mellon Institute had fellows working on the following problems: air pollution investigation, bricklaying investigation, food investigations, iodine investigation, commodity standards, chemical hygiene, barium compounds, ceramic chemicals, cotton research, garment research, heat insulation, organic synthesis, paper, protective coatings, safety fuses and explosives.

The Institute's researches in pure science have lately been widened, principally in the fields of biology and medicine. These problems are of recent investigation; therapeutic agents for pneumonia, pharmaceutical studies and causes of dental caries, and anti-streptococcic serum.

The Institute's new home was erected entirely during the depression period from late in 1930 to early 1937. There are eight floors, the four upper floors containing the laboratories; the fourth or main floor the administrative offices, library and museum; and the three floors the auditorium, special laboratories, shops, unit plants, and mechanical equipment. Over one hundred laboratories are provided on the upper floors; about one-third of their total area has been left unfinished for typical or special laboratory to be constructed when and as needed.

Since the dedication of the building the Institute has become a center of scientific meetings in Pittsburgh. The auditorium is used for the sessions of the Pittsburgh sections of the American Chemical Society, the local chapter of the American Institute of Chemical Engineers, The American Ceramic Society, and the Allegheny County Medical Society. It is also used by other organizations for public scientific lectures and by

One of the Small Entrances to the Cathedral of Learning many technical societies for special meetings. Comprehensive series of lectures by specialists are arranged by the fellows of the Institute. In its wider sense the Institute is concerned with the general advance of science and technology in industry.

Medical School

There has been an active association between the Medical School and the Alpha Epsilon Chapter since its founding, with the ties particularly close in the case of the Department of Anatomy. Many members of the Society have gone through the Medical School to take their M. D. degrees. This association has been facilitated by the fact that, for a number of years, the School itself has been on the campus. Now the six large hospitals and clinics comprising the Pittsburgh Medical Center are also concentrated in the Oakland District near the Cathedral. To this group are being added a State Psychiatric Hospital and a Municipal Hospital, which will be affiliated with the Center. Exclusive of clinics, the University group alone represents a capacity of 1000 beds. To meet this expansion along clinical lines, the preclinical facilities of the School have been enlarged, so that there are eighty students in a class.

With the expansion on the medical side has come a wider interest in the relationships of sciences outside those that used to be regarded as having direct clinical application. There is now an endocrine laboratory

School of Medicine and School of Dentistry associated with the lying-in hospital. A special group is studying the application of light to operating room sterilization. Another group is studying fever therapy. The Mellon Institute is cooperating in an investigation of chemotherapy in pneumonia. Nurses are being given their biological training in the Biology Department. These are all healthy signs of the realization of the general unity of biological facts. The older tendency to segregate observations and not allow the facts of the clinic to mix with the facts of the laboratory is passing.

These physical changes have coincided with a change in administration. Doctor R. R. Huggins, who had been Dean for more than twenty years, died in 1938. It was a source of particular regret to his many admirers that he could not have lived to see the Medical Center, which his efforts had made possible, as a completed whole. At this critical time, the School was spared the dangers of an interim administration by the appointment of Doctor W. S. McEllroy to the Deanship. Doctor McEllroy had been Doctor Huggins' trusted lieutenant for years and is not only conversant with the past here but with the modern problems of medical education. The Medical School, therefore, faces a situation of unrivaled opportunity. It is proud of the past and confident of the future. In this future, it is to be hoped that Phi Sigma may play a significant part. In the past, it has brought students of widely diversified interest together and helped counteract the disruptive tendencies of over-specialization. In the more active and intense scientific life, which one pictures for the future with our increased opportunities, this function of integration will be still more essential.

DENTISTRY

Phi Sigma is represented, in the Dental School, by seven members of the major faculty of both the basic subjects and the subjects presented in the Junior and Senior years.

Within the last two years, both the original Dental Building and the Clinic Building have been remodeled and modern electrical equipment has been installed. In 1938, the Dental School secured space in the former Mellon Institute Building to be utilized as a library and for stack rooms. The Library contains one of the largest and most complete collections of dental and allied literature in existance. It consists of approximately 21,000 bound volumes and 25,000 unbound publications in various languages.

The Dental School is at present on what is known as the 2-4 plan, that is, two years of predental college work are required for admission and four years of dental sciences. Students entering the Dental School have had basic courses in Biology, English, Chemistry and Physics, along with other cultural subjects.

While in Dental School, the various courses of the first and second years correlate these basic subjects with more practical applications. In Biology alone, the student branches out into Histology, Physiology, Anatomy of both the entire human body and also of the dental structures. In Histology, all of the tissues of the body are studied and in Physiology the application of biological facts to the functions of the various parts of the human body is further elaborated. In Bacteriology, the various forms of micro-organisms are studied and cultures of the flora of various pathological conditions are studied. Histology and Pathology are correlated so that the student learns both the normal and the diseased conditions of various parts of the body.

View in the Commons Room of the Cathedral of Learning

By the time the student advances to his Junior year and starts to work upon patients in the clinic, he has a sound basic knowledge which is to be broadened out in the various subjects such as Exodontia, Anaesthesia, Diagnosis, Radiography, Dental Pathology, Materia Medica and Clinical Medicine. All of these subjects together with the application of Anatomy, Physiology and Physics are coordinated in the reconstruction of lost or diseased dental structures, and further impressed upon the student. He is able to diagnose pathological conditions and if necessary to make bacterial cultures and proper diognostic tests and apply them to his general survey of the conditions found in the patient's mouth.

A true dentist must be an engineer, an artist, a careful craftsman, a diagnostician and from the biological side alone, must have a well grounded knowledge of the general health, function and structure of the human body. Besides, he must have a detailed knowledge of the anatomy, function, pathology and means of restoration of the structures of the oral region.

Even the four years spent in intensive study in the Dental School are at present supplemented by graduate courses in Exodontia, Anaesthesia, Orthodontia, Prosthodontia, Pediodontia, Radiography, Anatomy of the head and Oral Surgery. These graduate courses have been very well attended by former graduates.

The facilities at the Dental Clinics of the Children's Hospital, Magee Memorial Hospital, Skin and Cancer Clinic and at the Falk Clinic have afforded many advantages to both graduate and under graduate students. Last year the clinic at the Dental School including the outside clinics afforded treatment to many adults and children.

Much of this development in the School of Dentistry as well as in the profession at large, can be traced to Dr. H. E. Friesell, the Dean of the school. His untiring efforts and efficient leadership have placed the Dental School in the foremost rank of Class A Institutions throughout the country.

SCHOOL OF PHARMACY

Biological science is an integral part of the course of study in the School of Pharmacy of the University of Pittsburgh; it being pursued in its various phases during the entire four years. Botany serves as a prerequisite for the study of pharmacognosy, which entails both macroscopic and microscopic considerations of drugs yielded by plants and animals. Identification of crude drugs and detection of adulterants are included herein. Field expeditions enable the prospective pharmacist to recognize plants utilized medicinally, to identify common poisonous plants, to determine causative sources of allergic manifestations, and to collect rhizomes, roots, barks, etc., which are an aid in combatting illness. Physiology and pharmacology are interrelated courses which

Winter Campus Scene

afford opportunities for experimental studies on animals, for determination of symptoms of poisonous substances, and for the preliminary methods of treatment for such toxic conditions.

Bacteriology and hygiene are essentially concerned with the preservation of public health. Since the neighborhood pharmacy is the point of dissemination of knowledge to the physician and to the layman about bacterial vaccines, antitoxins, sera, and pollen extracts, it is important that the method of manufacture, the dosage, and the facility in producing immunity be considered. In this respect the physician and the pharmacist lead in introducing to the public those accepted biological products developed in research laboratories. Among these varied sciences are interspersed instructions in haematology, urinalysis, and parasitology.

The science of biology serves to equip the pharmacist with invaluable knowledge which, when combined with his pursuit of the science of chemistry and the art and science of pharmacy, enables him to fulfill his appointed obligation, that of compounding physician's prescriptions.

Thaw Hall, Chemistry and Physics Department

BIOCHEMISTRY

Phi Sigma has long enjoyed the support and cooperation of the division of Biochemistry in the Department of Chemistry. Graduate students, in this field, minoring in Biology, have in turn received stimulation from their contact with Alpha Epsilon and from the privileges extended through the facilities at the Marine Biological Laboratory at Woods Hole, Mass.

Under the leadership of Dr. C. G. King, Biochemistry at the University of Pittsburgh has risen to an outstanding place in this field. The present studies include investigations in the fields of animal nutrition, tissue respiration, enzyme kinetics, and the biochemistry of fats. Fascinating studies of variations in the nutritional requirements and enzyme characteristics of different types of experimental animals as the mouse, rat, guinea pig and the dog are also included in this program.

The Buhl Foundation has been lending financial support to research in the general field of Biochemistry for the past several years. The specific investigations are extended to fit into the work of the graduate students. Included in these investigations, are theoretical studies in Physical Chemistry, especially in retention to the facts and sugars. Three post-doctorate research men and four graduate student assistants comprise this group. One National Research Council Fellow is to be associated with the group next year.

With the present integration of Biology and Chemistry, such a group as this is invaluable to those attempting to understand the mechanics of living organisms.

CARNEGIE MUSEUM

Just across the street from the Cathedral of Learning is the Carnegie Institute, composed of four departments, the Museum, the Arts Department, the Music Department and the Library. Dr. Andrey Avinoff (an honorary Phi Sigma member) is its director. There is a very close relationship between the museum staff and the faculty of the University, many of the members acting as lecturers.

Both the Public Carnegie Library and the Museum Library are available to graduate students. Many periodicals are found in the museum library that are not obtainable elsewhere in the city. Many very excellent natural history exhibits are on display, including one of the best paleontology collections in the country. These make an important addition to the sources of material available to the biology student.

In addition to gallery exhibits, a student interested in a particular phase may go into the laboratories for a more intimate study and many of these laboratories employ either graduate or undergraduate students for part time work. The museum maintains laboratories in Archealogy and Ethnology, Botany, Entomology, Geology, Minerology, Herpetology, Ichthiology, Invertebrate Zoology, Mammalogy, Ornithology, and both Vertebrate and Invertebrate Paleontology.

Carnegie Institute Museum Entrance

Carnegie Institute is one of the outstanding museums in the country, and contains many sections less closely related to the biological sciences.

PHIPPS CONSERVATORY

Phipps Conservatory, located in Schenley Park directly across from the Cathedral of Learning, is one of the three largest conservatories in the United States.

The Conservatory has been entirely reconstructed and rearranged during the past four years, the staff now being headed by trained technical horticulturists. In the reorganization, new features have been added and all plant collections have been enlarged and improved upon.

In addition to having the most unique and modern conservatory flower shows in the country, the educational facilities have been enlarged and improved upon. Two courses in Floriculture are taught in collaboration with the University of Pittsburgh, the Conservatory facilities being used for laboratory work in these courses. A group of graduate students preparing for advanced degrees, under the direction of Mr. A. F. DeWerth, is conducting extensive investigations upon plant growth.

In rebuilding the growing facilities, one experimental house of four compartments of 1250 square feet each, has been constructed for this

Campus Scene

graduate research. Each house is individually controlled for temperature, humidity, and other factors of environment, making it a very complete laboratory for scientific investigation. The work now being carried on is in accordance with present research in the field and is concerned with soilless culture, growth promoting substances and the effects of chemicals and temperatures on rest period and dormancy in woody deciduous plants.

With extensive collections of botanical specimens in close relationship with the University, which is a condition that exists at no other like institution as far as tropical and greenhouse material is concerned, it is felt that in a few years the correlation of the facilities of the Conservatory and the University can be increased to such an extent that an outstanding program can be developed in the biological field.

PRESQUE ISLE

During the summer of 1926 the University of Pittsburgh established the Lake Laboratory at Erie, Pennsylvania, under the able direction of Dr. O. E. Jennings and Assistant Director Samuel H. Williams. Classes were first held in the State Fish Hatchery. Later the Presque Isle Park Commission provided a building on the penninsula.

The nature of the formation of Presque Isle and the natural successions of plants and animals have made the Lake Laboratory the center of many problems of research. Work in Ecology, Taxonomy, Entomology and Limnology has been carried on by several members of Phi Sigma. Dr. Witz will be in charge of the work in Botany at the station for the summer of 1939.

Stephen Foster Memorial

Research at Pittsburgh

The opportunities for research in Pittsburgh are on a relatively high standard. The Biology Department is concerned largely with undergraduate enrollment, but the staff is able to direct research in various fields of Biology. And with the splendid cooperation of the many neighboring institutions a student may find assistance and encouragement from specialists in practically all the fields of Biology.

In the Biology Department under the Graduate School, extensive research is being carried on in very diverse fields.

The anatomy undergraduate courses of Comparative Anatomy, Mammalian and Human Anatomy for nurses and physical education students may be carried into the graduate field under the direction of Dr. Peter Gray, who recently came from the University of Edinburgh, Scotland; and also under Dr. Edna Higbee. Dr. Gray approaches the experimental morphology field from the experimental embryologists viewpoint and is carrying on work dealing with the effect of electrical and chemical stimulus on the chick and amphibian embryos. Dr. Higbee is carrying on the work of experiments on adult and embryological forms of Triturus started by the late Dr. Henry H. Collins, who was a member of Phi Sigma. This work deals with problems on grafting, regeneration, and the effect of chemicals, dyes, and light on adult forms.

The scope of research in Bacteriology has been widened recently by Dr. A. B. Wallgren, who has had some of his Chem. graduates do work on the Chemistry of the toxins of diseases. Every bacteriologist of the future will be required to have a greater knowledge of Chemistry so that new aspects may be worked out on the older problems which have dealt with Germicides, Isolation, Contaminations, Seasonal Fluctuations, Fermentation, Dissociation and influence of environment on Bacteriological forms.

Dr. O. E. Jennings is one of the most outstanding Botanists of America and the members of Phi Sigma are especially fortunate in being able to carry research problems under his direction. His broad range of experiences makes it possible for a student to receive advice and encouragement in almost any field in Botany. Systematic work of all divisions of the plant kingdom, especially mosses, plant diseases, ecology, and paleobotany are being carried on by his graduate students.

The work in histology, stain technique and cytology is under the direction of Dr. W. H. Emig. Research in these fields is leading to a complete structural organization of the vascular tissue in several different forms.

Research in Field Botany has been carried on principally during the summer. This coming year courses will be introduced which will give an opportunity for work over the whole year. Under Dr. Witz investigation will deal with local flora and ecological conditions of streets, vacant lots and roadsides characteristic of an urban community with comparisons in native virgin vegetation.

Floriculture is a new course at the University of Pittsburgh and is appealing to a large number of our Botany majors. The facilities and type of research being carried on will be found under the heading ''Phipps Conservatory''. One of the first students (Miss Eleanor Knight) to major in this field has been made Director of the Pittsburgh Garden Center.

Several students are finding interesting problems in Animal Ecology and Entomology under the direction of Dr. Samuel H. Williams. In Ecology an exhaustive treatment of the environmental factors, both physical and biological is being made on the life history of plants and animals, as well as effects on the morphological habits of both. In addition much time is being given to the mechanical measurement of all of the above mentioned factors.

A monograph on The Cassidinae (Chrysomelidae, with notes on their geographic distribution) is being prepared by Mr. Lee Henderson. Included in the work will be keys to the genera and a check list of the species found at Kartabo, British Guiana.

Dr. G. M. McKinley directs the work in Genetics and Evolution. His main interest in research is the biological effect of Radio short wave (high frequency currents) about which he wrote a chapter for the Duggar National Research Council book on the Biological Effects of Radiation. At present he is acting as Genetic Council for the Children's Aid Society of Allegheny County and of the Federation of Social Agencies of Pittsburgh and Allegheny County, which are studying problems related to child adoption practice.

The students in advanced physiology participate in the physiology seminar which meets once a week at the home of the instructor Dr. E. A. Wolf. These students contribute to a Physiology Seminar Scholarship which amounts to $100.00 a year and which enables the recipient to spend two months on research at the Marine Biological Laboratory at Woods Hole, where Dr. Wolf directs investigations of the University of Pittsburgh. This coming summer Dr. Wolf will be joined by Dr. Peter Gray.

The graduate students under Dr. Wolf's guidance are at present engaged in research in the fields of phosphatase activity in animals and the study of calcification.

The work on the Geographical Distribution of plants and animals is directed by M. Graham Netting, who has done extensive work along this line, and has also identified several new amphibian and reptilian forms of life.

PERSONALITIES

Dr. Andrey Avinoff, an honorary member of the Phi Sigma Chapter is a man of diverse interests and talents. Besides being the director of Carnegie Museum he is also a professor in the Fine Arts Department of the University and an Advisory professor to the Biology Department. Dr. Avinoff has an excellent collection of Lepidoptera and has become a specialist in this field. He will be the speaker at the May meeting of our Chapter on "Some Geometric Principles in Wing Patterns in Lepidoptera and Other Animal Forms and Certain Physical Phenomena".

Dr. Andrey Avinoff

Dr. Stanton Chapman Crawford, Dean of the College, University of Pittsburgh and member of the biology staff came to the University in 1924 to work for his doctorate. He was a member of the party of students who worked at the Kartabo laboratory in the summer of 1924, under the direction of Dr. A. E. Emerson. Since receiving his Doctorate degree Dr. Crawford has been connected with the University in various capacities, such as Director of the Johnstown Center, and now Dean of the College. Dr. Crawford is a Faculty member of Phi Sigma.

Dr. Hugo Kahl, curator of the section of Entomology at Carnegie Museum and advisory professor to the Biology Department of the University, is one of the foremost general entomologists in the country as well as being a specialist in the Odonata group. Dr. Kahl is so gracious in his treatment of students from the University that they all feel free to go for advice and information at any time. Dr. Kahl is one of Alpha Epsilon Chapter's Honorary members.

Dr. O. E. Jennings

Dr. Otto Emery Jennings, Head of the Department of Biology at the University of Pittsburgh is also Curator of Botany and Director of the Department of Education of Carnegie Museum. He was a member of the mother chapter of Phi Sigma, at Ohio State, and has taken an active interest in Alpha Epsilon Chapter since its beginnings as a Graduate Biology group at the University and is always willing to offer suggestions when asked. He has been the leader for several of our field trips and speaks of the plants in such a descriptive way that the group does not easily forget what they have seen and heard described.

ALPHA EPSILON CHAPTER

The Alpha Epsilon Chapter of Phi Sigma at the University of Pittsburgh is a graduate organization. The Charter members were members of a Graduate Club. So the objects of the National Organization (to encourage research) have been closely associated with the origin of the chapter and all of its activities since.

With the beginning of the chapter a fund was established by Mrs. O. E. Jennings to provide for a Scholarship for some member to carry on research. During the ten years this fund has been subscribed to by other members providing 75 to 100 dollars each year. Most of the recipients have used the scholarship to study at Woods Hole, Massachusetts.

The following have received the scholarship:—

Dale Smith
Eleanor Reed
Alfred Levenson
Herbert McCullough
C. Ruth Shaw
Benjamen Speicher
Roland E. Miller
Mary McKinness
Harry Lipman

The first Scholarship medal was presented to Marcus Singer, who is now working at Harvard.

ALPHA EPSILON'S PRESIDENT

As President of the Chapter this year, Doctor Starkey's research work will be of interest to the members of Phi Sigma. He started work in the field of endocrinology three years ago and with his fellow member, Doctor E. Ch. H. Schmidt, now studying at Johns Hopkins, planned a series of experiments on the effect of male sex hormone in mice. Doctor Starkey was able to adapt the space he found available, so that large numbers of mice could be bred under controlled and standardized conditions. He followed the influence of testosterone propionate on the curious transitory X zone which appears in the adrenal glands of these animals during their growth. He was able to show that this hormone even in single doses inhibited the appearance of this zone in young animals or caused its disappearance in older ones. Later this work with the sex hormones was extended to cats, also carefully acclimated to the laboratory. Interesting results are coming from these experiments as well as from the continuation of the work on the mouse.

Collembolae and Quax

Alpha Epsilon Chapter is very fortunate in having two undergraduate science organizations which create a desire in the minds of the members for research investigations. Many of these former undergraduate science majors are now members of Phi Sigma.

Collembolae is an organization of both men and women. The purpose of the organization is to make its members familiar with phases of natural science not ordinarily discussed in the classroom. Also to help bring students with common interests together to promote among them sociality, friendship, and a common search for truth. Each year a scholarship fund is raised and one or two members of the society are aided in summer study at the Cold Spring Laboratory on Long Island.

Quax is an undergraduate organization for women majoring in science. Its purpose is to inspire and develop interest in general science.

The alumnae of Quax have started an employment bureau for their graduates. The group is hoping in this way to continue the undergraduate interest by helping the women to find the type of work in which they have received training.

BIOCHEMISTRY IN ENGLAND

DR. JOSEPH BUTTS, *University of Southern California*

Biochemistry in England and biochemistry in this country are two entirely different fields. In the average English laboratory one finds highly trained physical chemists who are utilizing physiochemical approaches to biological problems. This is well exemplified in the Warburg-Barcroft tissue slice technique which I think I encountered without exception in all British laboratories. The English investigators insist, and perhaps rightly so, that they are getting at the real foundations of biological chemistry and are not studying the end result of a great number of enzymatic reactions. The physiological work which compares more nearly to that in this country is being done by the physiologists and not by the biochemists. I found myself unable to speak the language of the biochemist until I spent much time studying oxidation-reduction systems and similar physiochemical approaches. At the Cardiff City Mental Hospital, where I was for some weeks, the scientific staff headed by Dr. Quastel were investigating the role of coenzymes in relation to certain dehydrogenations. Also, they were deeply engrossed in attempting to clarify the role of acetyl choline in mental processes. Dr. Quastel has an idea which is shared by some psychiatrists that abnormal mental conditions may be the result of some deranged physical condition. Some results which they were getting tended to support this conclusion. I witnessed some extremely interesting treatments of mental conditions; for instance, the Cardiazole treatment, which consists of inducing for some minutes terrific spasms after which the patient goes into a coma which holds for some hours. If the patient does not respond to this treatment, then the even more drastic insulin shock therapy is used; this consists of increasing amounts of insulin until the blood sugar is lowered to a convulsive level. After a short time the patient is given sugar and brought back to the normal blood sugar level. The prognosis after these treatments runs from 40-60% improved, and in many cases, if the patient is taken early enough, what appears to be complete cure. Brutal treatments, but the results justify the means.

In Denmark I visited the hospital which would be the most interesting to a person interested in carbohydrate metabolism, that is, the Niels Stensen Hospital in Gentofte, a suburb of Copenhagen. This fifty-bed hospital is reserved for the most critical diabetic cases in the three Scandinavian countries. The Director is Dr. Hagedorn, who, with other investigators, has prepared insulin protaminate. At this hospital I studied many charts which Dr. Karup kindly furnished and am convinced that this new hormone preparation, in their hands is giving wonderful results. Each patient undergoes blood sugar determinations every two hours during the time he or she is in the hospital. A new method for sugar determination which gives the value five minutes from the time 0.1 cc. of blood is drawn seemed to me to be very promising as a clinical method.

In Copenhagen I also visited the Carlsberg Laboratories which are supported or subsidized by the Carlsberg Breweries. The investigators there were very active in the field of metabolism using deuterium as an indicator. They demonstrated their method for deuterium determination which consisted of measuring the depth to which a drop of unknown D_2O sank in a column of known density gradient. This was compared with a second drop of known D_2O content. It seemed a very simple and accurate method for deuterium estimation. Dr. Sorenson is the Director of this laboratory, altho his student Dr. Lindestrom-Lang, actually does most of the active direction.

I believe if I were going to spend a year, these laboratories would be my choice for several reasons: personnel, equipment and supplies, and the important consideration of geographical isolation.

In France I had the pleasure of visiting Prof. Wurmser, who is Director of biological research in the Mme. Curie Institute in Paris. Capt. Wurmser had just been demobilized along with some millions of other Frenchmen. He apologized at great length because no work was in progress at the Institute. As this was the fifth of October, I think it is perfectly evident why. All technicians and all staff members had been evacuated, and wherever possible, were sent out of Paris. For physical equipment I believe this Institute was probably the best equipped laboratory that I visited. There was even a laboratory equipped for research on the denaturation of proteins by supersonic waves. I am sure had my French been better, or Prof. Wurmser's English better, I would have learned a great deal more.

In Germany I visited several laboratories and found in every case the staff extremely friendly and very anxious that as an American I should be accorded every chance of seeing everything they could possibly show me. The average German in temperament and in training, I believe, is much more nearly like the American than any other race of people I visited. I did feel, however, that the present political set-up is not too conducive to research and that Germany is rapidly losing the position she once held in biological chemistry. I met many famous men, but I did find what seemed to me to be a scarcity of well trained young men. The physical equipment, particularly optical instruments, was more than satisfactory, but research involving too large quantities of foodstuffs, particularly fats and oils, was not encouraged.

In closing may I add that I have never received finer treatment and have never felt so much at home in any foreign country as I did in Germany.

EDITORIALS

From the Land of Smog

TIME was when Pittsburgh was known the world over for its curious combination of smoke and fog which in heavy weather overlaid the whole area surrounding the junction of the Alleghany and Monongahela rivers and their daughter, the Ohio, and to which the natives of the region are said to have applied the ingenious combination word, "smog". The last few times we have visited Pittsburgh there wasn't any smog, and as far as we could see, there hadn't been much for some time past. Too many of the great steel mills were idle, and only here and there thin whisps of part-colored smoke showed where some great industrial plant was still making a pretense of carrying on its activities. Thus have the ravages of depression made their inroads on commerce and all the multifarious dependencies in life that drew their very existence from it.

It is, therefore, with pleasure that this issue of THE BIOLOGIST devotes its pages to the work of the University of Pittsburgh and all its various biological offerings. We are grateful to the members of the very active Alpha Epsilon Chapter, and to the various members of the University Staff who have presented their Alma Mater as it is seen through the eyes of her own students.

"Take the Cash and Let the Credit Go—"

SO sang the immortal bard who eulogized the loaf of bread, the jug of wine, and Someone very sweet and tender, singing in the wilderness. And the bard has many imitators today, some of them in Phi Sigma. Let your Editor be more explicit.

It is perhaps one of the faults of youth that it cannot see beyond the near, the immediate and the obvious. Only the older, the more experienced and the philosophical are able to look into the future, to see beyond their own locality, to feel the importances of apparently unimportant things. They are, in other words, those who are not content with that which appears on the surface, but look deeper into the implications that lie beneath and behind them.

The welfare of Phi Sigma is the immediate charge of every member of every chapter in the society. It is particularly the charge of the officers in each chapter who have shouldered this responsibility when they accepted the offices they hold. That welfare implies a lot more than functioning as the servant of the active chapter, presiding, or taking minutes or collecting dues. Any member of any organization would, and could, do as much. The welfare of the National Society, Phi Sigma, demands a national viewpoint, not only on the part of the national officers, but also on the part of chapter officers as well.

That so many chapter officers acquire or achieve this national attitude or frame of mind or awareness, call it what you will, is a tribute to the high type of chapters they represent. There are always, however, provincial minds which cannot see beyond their own campus, their own biology building thresholds, beyond their own laboratory walls. And these, too, intrude themselves into chapter offices.

As a result the chapter suffers, so also does the national organization. Interchapter contacts are let slip, contacts with the national officers become infrequent and slipshod, local honorary members are ignored, the distribution of the BIOLOGIST is confined to most immediate friends,—in a word, a small-town mind refuses to accept the wider implication that goes with even local office in a national organization.

Take the BIOLOGIST for an example. It is supposed to be distributed to every active, faculty, alumni and honorary member on each chapter campus. Sufficient numbers of copies are supposed to be ordered in advance from the National Treasurer. News items about the Chapters activities, copies of speeches and papers read, notable achievements of alumni and faculty members, should all be sent in to the editor of THE BIOLOGIST as soon as possible, not when a postcard arrives to remind the officers that this is at least biennially required.

As far as the Editor of this publication is concerned, such a national viewpoint would make a difficult job a lot more easy, would make the BIOLOGIST still more interesting, and would make the bond between the chapters still more effective.

"I See By the Papers"

DURING the past year or so the BIOLOGIST has been receiving attention from a number of quarters comparatively new in its experience. The advertising literature of a number of publishing houses carries quotations from book-reviews printed in these pages. Evidently our "thumbnail" sketches of the newest books are hitting it off with the book producers. Some of them are using several of the BIOLOGIST statements about their books. Among the more notable publishing houses so doing are The Cambridge University Press, Harper and Brothers, The Macmillan Company, The Prentice-Hall Company, Stanford University Press, and John Wiley & Sons.

CHAPTER NEWS LETTERS

Beta—University of Michigan

President—John Brookhart, Dept. Physiology, U. Mich., Ann Arbor, Mich.
Vice-President—LeRoy Harvey, Dept. Botany.
Secretary—Grace Orton, Dept. Zoology.
Treasurer—K. Eugene Goellner, University Museums.

On January 11, Beta Chapter initiated the following honorary and active members: Elizabeth Caroline Crosby (Honorary), Reuben L. Kahn (Honorary), Leonard Newton Allison, Mabel Elizabeth Allison, A. Kearney Atkinson, Frederick Schenck Barkalow Jr., Gretchen A. Beardsley, Clifford Osborn Berg, David Francis Bohr, E. Fred Bromund, Boleslaus Joseph Bujak, Lois A. Gillilan, Mabel Reed Gleason, Frederick David Goudie, Evelyn Sabra Hoke, Charles Juay Hong, Merton Harris Keel, Theodore Christian Kramer, Manuel Levin, Florence Eva Michlinski, L. Adeline Pierce, Marjorie Elizabeth Pierce, Betty Margaret Robertson, Beatrice Anna Scheer, Lloyd Lyman Smith Jr., Robert Hosea Trimby, Bruno Vassel, Gregorio T. Velasquez, Stephen S. White, Winifred Sharlene White, Joseph Job Worzniak, Corwin Robert Wright.

On May 3 the following were initiated: Ned Stuart Arbury, Robert McHenry Ashe, Francis Binkley, James O. Brown, Marguerite Cornell, Roy Clifford Elmgren, Olivia Cox Embrey, Martin P. Erickson, Robert Atwood Farrington, George William Gens, John L. George, Richard Gerstell, Beth Vivian Heide, Bert Edmond Holtby, Arthur Curtis Jones Jr., W. Harry Jones-Burdick, James Butt Klee, Robert Watson Kleemeier, Archie Justus MacAlpin, Andrew A. Ormsby, Martha Louise Orr, Jose Vera Santos, Sam Allen Singal, Charles Stockman Spooner Jr., Erich Ernst Steiner, James Lun Tong, Reed William Varner, Limas Dunlap Wall, Tom Vincent Wilder, Su-Hsuen Wu, Frances Elizabeth Wynne.

Epsilon—University of Denver

President—Robert Searway, 2175 S. High St., Denver, Colo.
Vice-President—Charles Hansen.
Secretary-Treasurer—Helen E. Dowling, Dept. Anthropology, Univ. Denver, Denver, Colo. (or 3432 West 33rd Ave.)

Epsilon Chapter held three meetings during the Winter Quarter at Denver University.

Our first meeting was held on January 4 at the home of our Sponsor, Mrs. Becker. The following papers were presented by three initiates of

Phi Sigma: "Recent Research on Uses of Sulfanilamide" was presented by Eleanor Knight; "Culture of Orchids" by Esther Woods; "Electrical Rhythm of the Human Brain" by LouElla Borden.

The next meeting was on February 1. The guest speaker was Dr. Byron Cohn of the Physics Department of Denver University who addressed us on "Processes of Color Photography" with special reference to its future uses.

Our program for the Quarter was concluded by an open meeting on March 1, to which all students interested in Biological Sciences were invited. The speaker of the evening was Mr. Leon Kelso, a former president of Epsilon chapter of Phi Sigma who is now affiliated with the United States Biological Survey. His subject was "The Work of the Biological Survey and its Relation to College Students".

On May 21 the following were initiated: David Hugh Howard, Stanley Vincent Koziara.

HELEN E. DOWLING.

Zeta—University of Wisconsin

President—Gordon Worley, Memorial Institute Building.
Vice-President—David G. Frey, Biology Building.
Secretary—Robert H. Burris, Agricultural Hall.
Program Secretary—Robert M. Stern, Agricultural Hall.
Treasurer—Marcus I. Wegner, Agricultural Chemistry Building.
Editor—John W. Thomson, Jr., Biology Building.

At the Fall Banquet of December 8, 1938 Zeta Chapter initiated fifteen new members into Phi Sigma. They are: Harlan D. Anderson, John Catenhusen, Windsor W. Cravens, Rubin W. Engel, John C. Flake, Edwin M. Foster, John C. Garey, B. Connor Johnson, Willis A. King, Dave Nusbaum, Stacy B. Randle, Willard A. Van Engle, Donald P. White, Weldon C. White and Alvin C. Wiese.

We are expecting that thirteen of our members will receive their doctorates this spring or summer and we hope that wherever they obtain their permanent positions, they will continue an active affiliation with Phi Sigma. In Genetics, Ben W. Smith has been studying the effects of three dominant-recessive gene pairs determining six color types in maize upon the relative weight of mature kernels per plant. In the Service Memorial Institutes, O. S. Orth investigated the "Effect of Sympathomimetic Drugs during Anesthesia" and Gordon Worley studied the "Destruction of Bacteria by certain Fish Liver Oils". Four Agricultural Bacteriologists are expecting their degrees with theses upon the following: S. C. Pan, "Studies of Lactic Acid Fermentation"; H. J.

Peppler, "Influence of Time and Temperature of Incubation and Storage on the Heat Resistance of Thermoduric Lactic Acid Bacteria"; R. K Tam, "Studies on the Dehydrogenases of the Root Nodule Bacteria"; and P. M. West, "Growth Factor Requirements of the Root Nodule Bacteria".

But one zoologist of our members is receiving his degree this June; he is C. L. Schloemer who has made a statistical attempt to evaluate some of the environmental factors which affect the growth of a stunted population of the Bluegill in Lake Muskellunge, Vilas County, Wisconsin. The larger group of pending alumni is among the botanists. Alfred Bartsch studying "Aquatic Chytrids of Wisconsin"; W. P. Pierce working on the "Cytology of Lespedeza"; Kenneth Karstens investigating "Root Activity and the Oxygen Requirement in Relation to Soil Fertility"; J. W. Boyes studying the "Cytology and Embryo-sac Development of the Plumbaginaceae"; and J. W. Thomson, Jr. with an ecological study called "Dynamics of some Prairie Plants in Central Wisconsin"; all expect to leave us this year.

Zeta Chapter has had a full and interesting schedule of open meetings this season. Dr. F. L. Kozelka, Toxicologist for the State Hospital, gave a very interesting talk on the "Medico Legal Aspects of Alcoholism and General Toxicology" as the opening speaker of the year. Alumnus K. G. Weckel of the Dairy Industry Department continued with the "Pilgrims Progress of Laboratory Findings", a discussion of the practical uses of science in the dairy industry. Honorary member, Professor E. G. Hastings, one of the outstanding bacteriologists of the country discussed the "History of Bacteriology at Wisconsin". His talk was very informative and full of anecdotes of the early scientific workers at our institution, for Professor Hastings has been at Wisconsin for over thirty-five years. At our Fall Banquet Dr. Marvin Johnson gave us a highly amusing and unusually lucid discussion of "Highly Specific Adaptive Enzymes". In January, Professor J. H. Mathews, chairman of the chemistry department, but also nationally known for his work on ballistics spoke on "Scientific Methods of Criminal Identification". Dr. C. A. Herrick of the Zoology Department, a perennially favorite speaker for Zeta Chapter contributed an interesting discussion on "Immunity in Parasitology". Dr. G. H. Bentham spoke on "Some Physiological and Biochemical Aspects of the Eye and Their Relation to the Disease Glaucoma". At the most recent meeting on March twenty-eighth we were greatly privileged in having Professor Friedrich Oehlkers, director of the Botanical Institute at Freiberg, Germany speak on the "Physiology of Meiosis" and give us an insight into a new approach to a great problem.

While we will have several more meetings this year, but few of them will be open. At one of them we expect that the members who are receiving their degrees this year will give us a brief summary of the results which they have obtained in their researches.

J. W. Thomson, Jr.

Eta—University of Akron

President—Patricia Nelan, 424 Merriman Road, Akron, Ohio.
Vice-President—Jean Jones, Department Biology.
Secretary—Robert Hare, Department Biology.
Treasurer—Samuel Caplin, Department Biology.

In November a joint open meeting with the Biology Club was held at which a lecture was given by Mr. J. R. Stine on the subject of "Public Health Work in Akron" including motion pictures in natural color showing different phases of the work.

At our regular bi-weekly meetings members have been giving reports on their individual research problems. The first report was given by Robert Hare on "The Life History of Lachnobolus Congestus"—a slime-mold.

Dr. W. C. Kraatz, head of the Biology Dept., is to give a report at our next meeting on the proceedings of the Ohio Academy of Science which he attended recently.

We have been considering as a project a group problem on which all members of the chapter could do some work. Problems suggested were: "Effects of Smoke on Tree Growth", "Effects of Winter Conditions on Time of Flowering of Spring Plants", and "Limits of Viability of Encysted Microorganisms". Samuel Caplin is in charge of investigating this project. He is assisted by Aubrey Allman and Bill Barkley.

Prospective members are to be pledged in June preceding the annual initiation banquet later in the month.

Robert Hare, *Secretary.*

Kappa—University of Kansas

President—Max Wheatly, 218 Snow Hall, University of Kansas, Lawrence, Kansas.
Vice-President—Gerald B. Pees, 22 Frank Strong Hall, University of Kansas.
Secretary—202 Snow Hall, University of Kansas.
Treasurer—Virginia E. Detler, 1244 Rhode Island Ave.

On March 30, the following were initiated: Malcolm James Brumwell, John Kerfort Griffith, Major M. Swan, Joseph Anton Tihen, Thaddeus Hug White.

Lambda—University of Montana

President—Laurence Osbursen, 116 Monroe, Missoula, Montana.
Vice-President—Corbin Hall, Missoula, Montana.
Secretary—Aloha Hannah, 408 Daly Avenue, Missoula, Montana.
Treasurer—B. W. Brink, 812 Beckwith Avenue.

Dr. Harold R. Cox, associate bacteriologist of the Hamilton experimental laboratory, was made an honorary member of Phi Sigma, at a special meeting January 24. Dr. Cox is a graduate of Indiana University, receiving his D.Sc. degree from Johns Hopkins University. He is an authority on immunology and filterable virus diseases. His studies on tick borne diseases, sleeping sickness, and infantile paralysis have been widely published. Dr. Cox is one of a limited number of persons to appear in American Men of Science.

At the same time twenty-two new members, including one faculty member was admitted to the active group. Those initiated were Rene Blondeau, Mill Valley, California; Allen Chesboro, Raynesford, Montana, Jack Miller, Missoula, Montana; James Salinas, Miles City, Montana; Thomas Rogers, Columbia Falls, Montana; Oliver Roholt, Browing, Montana; Donald Beck, Deer Lodge, Montana, Muril Brunsvold, Billings, Montana; Meril Carter, Cleveland, Ohio; Earl Clark, Broadus, Montana; Harry Corry, Billings, Montana; Eugene Elliot, Billings, Montana; George Fritz, New York, New York; Phil McLeod, Gard, Nebraska; George Mead, Cleveland, Ohio; Laurence Olson, Chicago, Illinois; Foster Polly, Missoula, Montana; Eduward Shults, Hamilton, Montana, Nancy Lennis, Missoula, Montana; Anne Picchioni, Klein, Montana; Hubert Murphy, Ronan, Montana; and Melvin Morris, an instructor in the forestry school.

After initiation ceremonies at the Natural Science Building the group held an Initiation banquet. Dean T. S. Spaulding and President George Finley Simmons gave speeches during the dinner.

Aloha Hannah, *Secretary.*

Mu—University of California

President—Dilworth D. Jensen, Dept. Entomology, Univ. Calif., Berkeley, Calif.
Vice-President—Eldon Gardner, Dept. Zoology.
Secretary—Beryl O. Schreiber, Dept. Botany.
Treasurer—John W. Johnson, Dept. Entomology, Agric. Hall.

The spring program for Mu chapter has been an interesting and varied one.

A buffet supper was held February 9. Doctor R. L. Olson of the Anthropology department was the speaker of the evening. His subject was ''Primitive Medicine''.

March 9, at an evening meeting, Professor A. W. Sampson, department of Forestry, spoke on ''Chemical Relations of California Foothill Plants'', illustrated with graphs and charts.

Twenty-two pledges were initiated at the formal initiation banquet March 30. President Dilworth D. Jensen conducted the initiation ritual and Mrs. Elma R. May gave the response for the initiates. The new members include: Bacteriology: Victor J. Thompson; Biochemistry: Burris B. Cunningham, Elsie G. McCullock; Botany: Paul J. Allen; Entomology: George Bohart, Lee R. Jeppson, Norman A. Olson, Ray F. Smith; Forestry: Thomas C. Adams, Paul E. Packer, Roy W. Saarni; Genetics: Ali A. M. El-Kishen, Gaafar S. H. El-Mallah, Hassan El-Tobgy, Gustave A. L. Mehlquist, Elton F. Paddock; Plant Pathology: Sam L. Baritell, James L. Childs, Jack R. Harlan, Saul Rich; Zoology: Elma R. May, Barbara J. Newcomb. After the initiation ritual Dr. Chauncey D. Leake, Professor of Pharmacology, spoke on ''The Action of Chemicals on Living Things''.

The University of California and Stanford University exchange seminars sponsored by Mu chapter and Stanford's biology department have been successfully continued under the able direction of Eldon J. Gardner, UC, and Louis E. DeLanney of Stanford. The program has been as follows:

Jan. 26; E. L. Tatum, Stanford: Eye-color hormones in Drosophila. At Berkeley.

Feb. 23; William Balamuth, Berkeley: Recent contributions to the regeneration problem in Protozoa. At Stanford.

March 23; Fred F. Test, Berkeley: A study of plumage coloration in the flickers (Colaptes) with consideration of evolutionary trends.

Eldon J. Gardner, Berkeley: Influence of the genic environment on the pattern of the wing of Drosophila. At Stanford.

BERYL O. SCHREIBER, *Secretary.*

Nu—Washington and Jefferson College

President—Walter H. Kasserman, Lambda Chi Alpha House, Washington, Pa.
Vice-President—Ned Doscher, Hays Hall, Washington, Pa.
Secretary—Donald R. Rose, Lambda Chi Alpha House, Washington, Pa.
Treasurer—Herbert G. Grether, 34 South Lincoln St., Washington, Pa.

We have had a very successful year here at Nu chapter. Our new members are aiding greatly in the work at Washington and Jefferson.

At a recent meeting Dr. Dieter, our faculty advisor, gave a splendid talk on social diseases. His talk was unique in that he emphasized the bacteriology of these diseases. His lecture was also illustrated with motion pictures, which were very good.

We have started the practice of having monthly seminars which add much to our chapter's activities. Recently Nu chapter took part in the College's open-house. Phi Sigma members acted as guides to people who were touring the biology building.

It is planned for us to take a field trip this spring to a state park.

On May 2, the following were initiated: John William Davis; Kenneth M. Mason; James Edward Miller; Curtis E. Sterner.

RICHARD MONTGOMERY, *Secretary.*

Pi—Emory University

President—Merrill Lineback, 605 Seminole Ave., Atlanta, Ga.
Vice-President—Dorothy Lunsford, 1614 N. Decatur Rd., Atlanta, Ga.
Secretary—Mary Stipe, 1161 Ponce de Leon, Atlanta, Ga.
Treasurer—Charles Uhl, 1063 E. Clifton Rd., N. E., Atlanta, Ga.

The new members of Pi Chapter of Phi Sigma were initiated at a banquet on March 9, 1939. They are: Dr. H. M. Phillips, Dr. J. G. Lester, Thomas J. Oliver, Rafe Banks, Jr., Jeanne Matthews, Lillian Carpenter. At the same meeting a very interesting talk on state parks of Georgia, illustrated by a moving picture, was given by Mr. James Brooks of the State Park division.

Pi Chapter plans to sponsor a lecture on cancer control early in April. The plans for this are not yet definitely decided.

MARY STIPE, *Secretary.*

Sigma—University of Florida

President—Louis Marchand, University Station, Gainesville, Florida.
Vice-President—Kenneth Swinford, School of Forestry, University of Florida, Gainesville, Florida.
Secretary—Wilber DeVall, School of Forestry, University of Florida, Gainesville, Florida.
Treasurer—Coleman Goin, Department of Biology, University of Florida, Gainesville, Florida.

During the present school year Sigma Chapter has been fortunate in having a number of outstanding speakers. The first of these was Mr. Sidney A. Stubbs, who spoke to our chapter on December 12. Mr. Stubbs, geologist at the Florida State Museum, lectured on "The Relationship beween Biology and Geology".

The next speaker was Dr. J. Douglas Hood, of Cornell University, who is noted for his work in taxonomic entomology. Dr. Hood gave an interesting and instructive lecture on "Heterongonic Growth".

At the meeting of January 9, Mr. Wilber DeVall, Teaching Fellow in the School of Forestry at the University of Florida, gave an illustrated lecture on forest conservation.

On January 23, Dr. George R. LaRue, Chairman of the Department of Zoology at the University of Michigan, told something of the history and work of the Biological Station at Lake Douglas, Michigan, of which he is director.

Mr. Erdman West, Mycologist at the University of Florida Experiment Station, spoke on ''Floating Islands of Orange Lake'' at the meeting of February 13. He explained the vegetation of these islands and the method by which they were probably formed.

The University of Florida Chapter of Sigma Xi and Sigma Chapter of Phi Sigma gave a joint banquet, March 2, for Dr. J. G. Needham, Professor Emeritus at Cornell University. He spoke on ''The Common Ground of the Poet and the Naturalist''.

On March 13, Prof. H. W. Norris, head of the Department of Biology at Grinnell College, lectured on ''Further Development of the Hypophysis of Plagiostomes''.

Two innovations in Sigma Chapter this year have met with much enthusiasm; refreshments at every meeting and printed programs of meetings planned for the year.

On April 8, the following were initiated: Arnold Bertram Albert, Oliver Wendel Anderson, Jr., Kenneth Paul Bragdon, Thomas Byrd Foard, Nelson Marshall, Donald K. Plank, Marie Janet Ridenour.

CHARLES BENTON, *Secretary.*

Upsilon—Miami University

President—Charles Heintzelman, Elliot Hall, Oxford, Ohio.
Vice-President—Ann North, Wells Hall, Oxford, Ohio.
Recording Secretary—John Ellis, Phi Delta Theta House, Oxford, Ohio.
Corresponding Secretary—Roger Harned, 116 W. Collins St., Oxford, Ohio.
Treasurer—William Lunsford, Elliot Hall, Oxford, Ohio.

The following were initiated Thursday evening, March 23, 1939: Jeane Dunkley, James Cleary, Christine Clark, Adolph Gruber, Alice Griner, Betsy Gottron and David Siehl.

Following the initiation ceremony a banquet was held in honor of the new members. Dr. W. H. Shideler of the Geology Department gave the after dinner speech. He talked about his recent trip around the world.

A committee has been appointed for selection of candidates for election of officers for the coming year.

Dr. D. A. Tucker, head of the Board of Admissions, from the University of Cincinnati Medical School, gave a talk on Socialized Medicine at an open meeting Feb. 16. Carl Maslowski, Miami Valley Naturalist, gave a lecture accompanied by moving pictures on the flora and fauna of the Miami Valley.

ROGER HARNED, *Corresponding Secretary.*

Phi—University of New Hampshire

President—Philip C. Harvey, Durham, N. H.
Vice-President—Hilda Batchelder, Durham, N. H.
Secretary—Wendell Pratt, Durham, N. H.
Treasurer—J. R. Thompson, Durham, N. H.

The following were initiated on November 9: Kenneth E. Anderson, John Frederich Archibald, Thomas E. Chretien, Philip Gignac Couture, Francis Gaynor Evans, Clyde A. Goodrum, Carolyn Florence Jackson, Kenneth E. Kenison, Frank Ernst Perron, Jr., Paul Washburn Prince, George Sherman Ripley, Jr., Irving Milton Shapiro, Joseph Louis Stone, Louisa H. Stuart, Gordon C. Tower, Gordon Page Woolner.

On the first meeting of the new year on Jan. 11, F. Gaynor Evans, one of the new faculty of the zoology department and a recent initiate of this chapter, gave a talk and presented slides on the subject, "The Evolution of Man".

On Feb. 1, the speaker of the evening was Professor Jackson, Dean of the College of Liberal Arts, who gave a talk on sled dogs and winter camping and concluded with colored movies of a recent trip that he had taken with dogs in the White Mt. National Forest. Gordon Woolner gave a paper at this time on bird migration.

The annual Pre-Medical nite was held in the commons organization room on Feb. 15. At this time all the Pre-Medical students of the University were invited to attend to hear Dr. Burrows of the New Hampshire Public Health Service, who spoke to us on the history of the service and some of the more important things that it renders to the citizens of the state.

The second meeting of the month was the election of new members and presentation of papers by the members. Due to the lack of eligible pledges the spring elections and initiation were cancelled.

The meeting on March 8 was taken over by regular business and the presentation of a paper on "The Summer Activities of the Ruffed Grouse in Passaconaway, New Hampshire".

On March 22 the principal speaker of the evening was William Hartwell of the Physics Department, who spoke of a few of the newly developed instruments in Physics which he predicted would be of interest to Biologists.

The members are looking forward to a spring week-end outing in the mountains if the weather conditions will permit. Many of the meetings this year have been held at fraternity and sorority houses of the members to add a more personal aspect and promote a greater interest in the organization.

WENDELL E. PRATT, *Corresponding Secretary.*

Chi—Montana State College

President—Nolan Keil, Lewis Hall, Bozeman, Mont.
Vice-President—Ferne Wilson, 801 South 7th, Bozeman, Mont.
Secretary—Luella Hamilton, 1011 South Grande, Bozeman, Mont.

The Chi Chapter, with the aid of Alpha Zeta, is sponsoring a program of free weekly movies, for the months of January thru April. The movies, accompanied by sound, are both educational and entertaining, odd bits not usually seen in the theater. Two of the best have been "African Game Trails" and "The Plow That Furrowed the Plains"—a picture of the great-plains region of United States.

Alumni Notes—

Peter Matisheck, president of Chi chapter last year, is doing graduate work at the University of Kansas.

Miss Veda Jacobs, last year's secretary, is teaching high school at Frazer, Montana, many of her pupils being Indians. She has charge of the school band there.

Three alumni members of Chi chapter are employed on the campus by the entomology department. Dr. James H. Pepper is assistant professor of the entomology department and of the experiment station. Mr. Elsworth Hastings and Mr. Elias Westlake are employed by the agricultural experiment station and are also graduate students.

Recent initiates:

Initiated in June, 1938—Cecil Haight, Clifford Dougherty, Walter Allen Tschirgi.

Initiated in December, 1938—Daisy Flick, Don Scharff, Samuel Litzenberger.

Initiated in May, 1939—Harlow Burgess Mills, Donald James Pletsch, Clarence Archer Tryon, Jr., Irene E. Andes, Charles Leonard Buck, Jr., Paul David Buck, Marvin Frank Kelly, Albert William Mihelic, Frances Hixon Peters, Florence Beverly Rich, Henry David Rossiter.

LUELLA HAMILTON, *Secretary.*

Omega—University of Oklahoma

President—William Falkner, Botany Dept., Univ. Okla., Norman, Okla.
Vice-President—Elaine Walker, Zoology Dept., Univ. Okla., Norman, Okla.
Secretary—James Smith, Zoology Dept., Univ. Okla., Norman, Okla.
Treasurer—Paul Smith, Botany Dept., Univ. Okla., Norman, Okla.

The Omega chapter meetings this semester have for the greater part been in charge of member speakers. At one meeting Dr. Weiss of the Zoology department entertained the members with movies taken by himself in Louisiana and also with films furnished by the extension division.

At the last meeting six new members were elected to the chapter and it was decided that the initiation would be held at the Spring meeting of the Oklahoma Academy of Science by the permission of that group. This meeting was held at Bragg, Oklahoma, on April 28, and the following were initiated: Vonna Lee Lamme, Wendell Conner Allen, Lilyan Clayton, Robert E. Kuntz, Betty Klinglesmith, Dorothy V. Thornton.

Alpha Alpha—University of Southern California

President—Nathan E. Carl, 1587 W. 45th St., Los Angeles, Calif.
Vice-President—Mrs. Ura T. Jensen, 1220 W. 30th St., Los Angeles, Calif.
Secretary—Elaine Adams, 9725 Regenet St., Palms Station, Los Angeles, Calif.
Treasurer—James L. Aiken, 5433 7th Ave., Los Angeles, Calif.

The Winter Initiation Banquet for Alpha Alpha Chapter of Phi Sigma, was held on Friday evening, February 17, 1939 at Scully's Cafe. At the formal initiation preceding the banquet at the home of Dr. and Mrs. Harrison, the following were inducted into the society: Virginia Beanfield, Howard Goldin, Mary Belle Johnson, Eunice Launer, Rudolph Miller, Jr., Charles Lockhart, Grant Smith, Mildred Winn.

Following the dinner President Carl introduced the speaker of the evening, Dr. Joseph Butts, of the Biochemistry Dept. of the University of Southern California, who had just returned from Europe and spoke on "Science and Medicine in the countries where he had visited". He presented a most informative and interesting talk on the status of the medical man in the various foreign countries, and the work being carried on by outstanding members of the sciences in the corresponding countries. His talk also included several personal experiences which were of interest to the group.

The regular March monthly meeting of the society had for its speaker our well known and much liked Dr. Dwight Pierce of the Los

Angeles Museum, who spoke on the subject ''Insect carriers of disease''. Some excellent colored pictures and interesting charts accompanied his talk. After the talk, there were some very entertaining questions and answers between the group and Dr. Pierce and the discussion ended with a couple of amusing personal experiences on the part of the speaker.

Alpha Beta—Mount Union College

President—Cornell McFadden, Sigma Nu House, Union Ave., Alliance, Ohio.
Vice-President—I. Gene Austin, S. A. E. House, Union Ave., Alliance, Ohio.
Secretary—Elsie Jane Sanderson, Sebring, Ohio.
Recording Secretary—Ruth Scott, A. X. D. House, Alliance, Ohio.
Treasurer—Martha Smith, Elliott Hall, Alliance, Ohio.

Alpha Beta of Phi Sigma recently enjoyed two very good meetings. On March 2, Alpha Beta held its second semester initiation service for the following new members: Evelyn Warther; Donald Bauman, Mary Stevens; Eugene Weber; John Thomas; John Bottomy; Dorothy Bell Arter; and Richard Kelty. After the initiation Dr. Joseph M. Scott, head of the biology department, presented a brief history of Phi Sigma on Mount Union College's campus. The initiation was held at the Sigma Alpha Epsilon fraternity house. Jane Dugan, social chairman, served refreshments.

On March 9, Alpha Beta held its annual lecture in the biology lecture room of Science Hall. Guests were invited, including faculty members, and outstanding underclassmen biology students. Dr. Gaurley, a professor of horticulture at Ohio State University, gave a very interesting talk. He had brought with him all sorts of plants with which to illustrate his lecture. After the lecture a reception was held for Dr. and Mrs. Gaurley at the Alpha Xi Delta house. Jane Dugan, again, was in charge of refreshments.

Elsie Jane Sanderson, *Corresponding Secretary.*

Alpha Epsilon—University of Pittsburgh

President—Dr. Wm. Starkey, 1001 Cathedral of Learning, Pittsburgh, Pa.
Vice-President—R. Dale Smith, 1001 Cathedral of Learning.
Corresponding Secretary—Dr. Edna Higbee, 1001 Cathedral of Learning.
Recording Secretary—Charles De Moise, 1401 Ashland St., Greensburg, Pa.
Treasurer—Olga Catizone, 1001 Cathedral of Learning.

Initiates of April 14 were: Thurlow Weed Brand, Mary Martha Busch, Nicholas A. Galvanese, William Lawrence Charlesworth, Robert Winston Churchill, John Irvin Cretzinger, Richard Floyd Darsie, Jr., William Jesse Franks, Helen Amelia Griffith, William Henry Harris, Tryphena Humphrey, Lawrence Francis Jablonski, Jr., Paul Kemp Jones, Edmund Richard Kielman, Agnes Hartman Salchli, Donald Campbell Sandy, Edward Lincoln Sutton, Jr., Willard Leonidas Webster.

Alpha Eta—Oklahoma A. & M. College

President—Robert Kaiser, Apiary Bldg., Okla. A. & M. College, Stillwater, Okla.
Vice-President—Herman Oakes, Horticulture Dept.
Secretary—Mary A. Bryan, 202 Husband St.
Treasurer—Bill Gorman, Aggie Halls, Okla. A. & M. College.

Alpha Eta chapter held its spring initiation and banquet Thursday evening, March 30, 1939. The following persons were initiated into the society: Ben Bishop, Travis Collier, Mitchell Cox, Sidney Cox, Max Cress, Ellsworth Fisher, A. B. Herring, F. C. Stark, Clifton Taylor, Rollin Thayer, Alex Weiderkehr, Jerry Williamson, Bill Friman, Dr. K. Starr Chester, Dr. F. A. Fenton, Dr. W. B. Gernert, Dr. E. E. Harnden, Dr. W. W. Ray, Dr. L. E. Rozeboom, Prof. L. L. Ligon, Prof. H. F. Murphy, Prof. M. J. Plice, Mr. J. W. Apple, Mr. Frank Davies, Mr. Hugo Grauman.

The banquet was held in the college cafeteria and was attended by about eighty members and guests. The tables were decorated with yellow, white, and green candles and bouquets of shasta daisies. The society was extremely fortunate to have for its speaker of the evening the national secretary of Phi Sigma, Dr. A. I. Ortenburger. Dr. Ortenburger gave a most interesting discussion of zoogeography.

ROBERT W. KAISER, *President*.

Alpha Theta—Washington State

President—Charles J. Campbell, 506 Colorady St., Pullman, Wash.
Vice-President—John Hardison, 1202 Maiden Lane, Pullman, Wash.
Secretary—Katharine Klise, 202 Spaulding St., Pullman, Wash.
Treasurer—James Mason, 504 Morton St., Pullman, Wash.

The following were initiated May 19, 1939: Amy Elizabeth Calkins, Arnold Howard Dillard, William Michael Dungan, Jr., James Earl Duree, Fay C. Ewbank, Harry William Farrell, Gerhardt C. Graep, Donald Ward Hedrick, John Mallory Hendershot, Ruth Holbrook, Earl Stewart Horner, Wilbert Keith Kennedy, Frederick G. Meyer, Philip Charles Olson, William Wallace Peek, George Gordon Permut, Barbara Gray Shirley, Frank R. Thorndike.

Alpha Iota—Bucknell University

President—Robert Griesemer, 232 N. 10 St., Reading, Pa.
Vice-President—George Sauer, 19 Lockhart St., Wilkes-Barre, Pa.
Secretary—Kenneth F. Herrold, Dept. Biol., Bucknell Univ., Lewisburg, Pa.
Treasurer—Jane Snyder, 1201 6th Ave., Altoona, Pa.
Advisor—Dr. W. H. Eyster, 130 13th St., Lewisburg, Pa.

Alpha Iota has held two very interesting meetings since the last news letter was published. The speaker at the January meeting was Dr. Henry Hunt of the Geisinger Memorial Hospital in Danville, Pa. Dr. Hunt spoke on ''Medical Technology'', addressing his remarks mainly to those who were planning to go into that aspect of medical work. In March, Charles E. Mohr of the Reading Museum of Natural History, spoke on ''Life in North American Caves'', using lantern slides and motion pictures to complete his excellent word description. Mr. Mohr graduated from Bucknell in 1930, and is a charter member of Phi Sigma. Recently he has published an article in *Natural History* about his special studies of cave life.

The pledges are, for the most part, in the midst of their research; a few have almost completed their problem at this date. A list of the pledges showing their various types of work is as follows: Miss Helen Greenleaf—Uses of Walnut Stain. Miss Janet Clayton—Observations of Leucocytes in the Earthworm. Miss Hannah Mervine—Immunity in Frogs to Red-leg Disease. Miss Barbara Ludwig—Optimum Load, Work Performed, by Frogs. Miss Ashman—Muscle Size and the Optimum Load. Miss Ruth Perry—Flagellation and Types of Motility in Bacteria. Mr. William Eyster—Kupffer Cells in the Turtle. Mr. Richard Snyder—Bird Migration in the Lewisburg Region. Mr. Merrion—Effect of Irradiated Oil on Bacteria. Mr. William Kerschner—Nerve Endings in Frog Muscle. Mr. George Sauer—Preliminary Studies on Paper Milk Containers. Mr. Edward Rabe—Metamorphosis in Frogs Treated With Thyroxin.

Miss Clayton will present her findings at the annual meeting of the Pennsylvania Academy of Science, April 7, 8, at State College, Pa.

Dr. Norman H. Stewart's article on ''Observations of Parasites in the Deer of Pennsylvania'', which appeared in the last issue of THE BIOLOGIST has been reprinted and put into the hands of game wardens all over the state, in the hope that it will help them to more thorough understanding of the problem.

Dr. William H. Eyster, Professor of Botany at Bucknell, has been invited to attend the International Genetics Conference at Edinburgh this summer in view of his outstanding work in the development of new varieties of marigolds.

RICHARD C. SNYDER.

Alpha Kappa—Hunter College Alumnae

President—Irene Borek, 2199 Holland Ave., N. Y. C.
Vice-President—Mildred Spector, 1925 Harrison Ave., N. Y. C.
Secretary—Mildred Maisler, 1665 Townsend Ave., N. Y. C.
Treasurer—Anita Gaviss, 69 Buckley St., City Island, N. Y. C.

On January 27 Alpha Kappa initiated: Shirley Amkrant, Mary Elizabeth Arnold, Jessie Aronson, Sophie Berck, Sheila Rhoda Berg, Carol Elgart, Renee C. Gluck, Anne Marie Hanson, Leah Kuselowitz, Blanche Lindauer, Harriet Poller, Sylvia Rosenstock, Betty R. Talmage, Bernice Estelle Tanz.

Alpha Lambda—University of Utah

President—Tyler A. Woolley, 575 Driggs Ave., Salt Lake City, Utah.
Vice-President—Albert W. Grundmann, 352 University St., Salt Lake City, Utah.
Secretary—Frances Swift, 1445 East 9th South, Salt Lake City, Utah.
Treasurer—Lonetta Johnson, 1204 Fenway Ave., Salt Lake City, Utah.

Alpha Lambda chapter at the University of Utah is proud to announce the initiation of the following: Barbara Bishop, Wayne Winters Brewster, Ezra Russell Day, Keith Reynolds Kelson, Nephi K. Kezerian, Sonya Elizabeth Lignell, Virgil Selwin Naser, Anna De Ogilvie, Charles Selwyn Richards, James Louis Schricker, Jr., Theodore P. Stookey, Blaine Cabble Taylor, Helen Zeese.

Pledging was held in the Union Building, January 18, 1939. The initiation ceremony took place in the Art Barn, March 3, 1939 followed by a banquet and a dance. Dr. Cottam of the Biology Department acted as Toastmaster for the evening, assisted by Dr. O. A. Ogilvie of the Bacteriology and Pathology Department who spoke on behalf of the faculty. Other toasts were proposed by Ruelon Wells, on behalf of the Active Chapter, and by Louis Schricker, on behalf of the new Initiates.

With the close of another successful and enjoyable year the following officers will relinquish their duties: Tyler Woolley, President; Albert Grundmann, vice-president; Frances Swift, secretary; and Barbara Quinn, treasurer. Election of new officers is to be held April 5, 1939.

FRANCES SWIFT, *Secretary.*

Alpha Mu—Oregon State College

President—Clara Chapman, Dept. of Botany, Oregon State College, Corvallis, Oregon.
Vice-President—Dr. Alfred Taylor, Dept. of Zoology, Oregon State College, Corvallis, Oregon.
Secretary—Ivan Donaldson, 227 N. 17th St., Corvallis, Oregon.
Treasurer—George Hansen, 1759 A St., Corvallis, Oregon.
Reporter—Helen Lockren, 439 So. 15th St., Corvallis, Oregon.

On January 25, Alpha Mu Chapter initiated G. H. Kaloostian, graduate in entomology, who was unable to be present at the fall initiation banquet. Dr. J. E. Simmons, Professor of Bacteriology, spoke on ''Blood Transfusions''. Dr. Simmons is an expert on the subject, and gave a very interesting and instructive account of the different kinds of blood and their reactions.

The open meeting of the winter term was given by Dr. K. L. Gordon of the Zoology Department, who gave an illustrated lecture on animal behavior. He showed his colored slides and movies, featuring especially the learning and reasoning ability of golden-mantled ground squirrels.

On March 4, Phi Kappa Phi sponsored a colloquium on Biological Science. Dr. C. A. Kofoid, protozoologist from University of California was the principal speaker. The colloquium consisted of a series of meetings, two in the morning and two in the afternoon. Other speakers were drawn from the instructional staff of Oregon State College and the University of Oregon Medical School. The noon luncheon was sponsored by Sigma Xi, and the afternoon tea was in charge of Phi Sigma.

H. L.

Alpha Nu—University of New Mexico

President—Ports Bretney, 505 South Walter, Albuquerque, N. M.
Vice-President—Oscar Syme, 905 W. Coal, Albuquerque, N. M.
Secretary—Miriam Roberta Higbee, 229 North Walter, Albuquerque, N. M.
Treasurer—Louise Lipp, 2112 E. Silver, Albuquerque, N. M.

The first meeting of the school year was held on September 22 for the purpose of making plans for the coming year. During the year the following talks and activities were given before the members of Alpha Nu:

October 6: Dr. William J. Koster, Biology Department, Univ. of N. M., ''Fish in New York''.

October 20: Mr. J. Jensen of Santa Fe, ''Birds in New Mexico''.

November 3: Dr. W. W. Hill, Anthropology Department, Univ. of N. M., ''Navajo Agriculture''.

November 17: Mr. A. A. Borrell of Soil Conservation Service, Albuquerque, "Predatory Birds and Mammals".

December 15: The banquet and initiation service for new members was held. Dr. M. O. Blakeslee of Los Lunas, N. M., was the guest of honor at the banquet and spoke on "Mental Delinquency".

February 2: Mr. Leslie N. Goodding of the Soil Conservation Service, Albuquerque, "Native Plant Exploration".

February 16: The members of Alpha Nu were given a party held at the Biology Department. "Do as you please" seemed to be the theme of the party. There were tables playing everything from Ping Pong to Cootie. The new members were also requested to take part in a few stunts.

February 21: At 9:00 P. M. Phi Sigma gave a half hour radio program over KOB, Albuquerque, N. M. The first twenty minutes were given over to a sketch dramatizing Theobald Smith's discovery of the role played by the ticks in the spread of Texas Fever. The narrative was read by Miss Dixie Ray Boyd and characters in the play were portrayed by Messrs. Martin Fleck, Robert Fincke, Ports Bretney, and Roy Neal. In the remaining ten minutes Mr. Ports Bretney discussed the origin and development of corn.

March 2: Dr. Frank Hibben, Anthropology Department, Univ. of N. M., "Role of Mountain Lion in the Southwest".

March 16: Mr. Martin Fleck, Albuquerque, N. Mex., "Theory of Corn".

Initiation for the new members of Alpha Nu of Phi Sigma is to take place on April 20. Those to be initiated are: Gertrude Irene Bayless, Samuel William Bowman, Pauline Ella Brandmiller, Edward Peter Kijenski, Washington W. NeSmith, Melbourne L. Spector, and Robert B. Troxel.

MIRIAM ROBERTA HIGBEE, *Secretary.*

Alpha Xi—Rhode Island State College

President—S. Gilbert Blount, Jr., Beta Pi House, Kingston, R. I.
Vice-President—June Mac Knight, Chi Omega House, Kingston, R. I.
Secretary—Elizabeth Leon, Delta Zeta House, Kingston, R. I.
Treasurer—Victor Tkaco, Beta Phi House, Kingston, R. I.

Robert Warren Trescott, John Peleg Barlow, Natalie Browning Whitford, Helen Teresa Edmonds, Virginia Frances Hornby, Alfred Jaffe, Vahey Pahigian, Frederick Gould Peckham, Benjamin Rowland Robinson, Jr., Louis Drescher Stringer, Henry David Weiss, were initiated Dec. 8.

On January 19 a talk was given by Professor Robert A. DeWolf on problems of genetics, basing his ideas on evidence offered by the Dionne quintuplets. On March 2, Professor George Durham gave a description and explanation of the salivary gland chromosome, using lantern slides and charts. Gilbert Blount, president of the chapter, gave a talk on the liver and gall bladder on March 16. On March 30, Dr. Vernon Cheadle gave a descriptive account of his trip to Cuba.

On January 22, an experiment on extra-sensory perception was carried out by Henry Weiss, and on March 11, a discussion on sex education in the public schools and colleges was led by Vahey Pahigian.

Vahey Pahigian has been elected editor-in-chief of *The Cell*, an annual publication of the chapter. Frederick Peckham is the associate editor, Rose Bishop is art editor, and Antonio Cappello is alumni editor. Every active member has been drafted to write a paper for this year's publication, which is expected to be ready by May 15, the date set for our annual banquet.

ELIZABETH LEON, *Secretary.*

Alpha Omicron—Marquette University

President—James R. Neidhoefer, 1529 N. 51 St., Milwaukee, Wisconsin.
Vice-President—Frederick Adler, 928 S. 20 St., Milwaukee, Wisconsin.
Secretary—Robert E. Esser, 2021 S. Layton Blvd., Milwaukee, Wisconsin.
Treasurer—Charles G. Wilber, 1710 W. Highland Ave., Milwaukee, Wisconsin.

On January 15 the following were initiated: George Henry Becker, Marjorie Artus, Joseph M. Mosovsky, Norman Christian Olson, Paul Ernest Schmitt, Sister Mary Thomasine, S.S.N.D.

On February 20th, Donald Greiff reported on Longevity in Drosophila. He explained many new findings which he has made and stated that the paper is now being prepared for publication. Mr. Joseph Wocasek gave a talk on the results he has obtained in the distillation of fatty acids occurring in nature. Both these papers were presented at the regular February meeting.

On March 20, the chapter met at Mount Mary College at the invitation of one of its new members, Sr. Mary Thomasine, S.S.N.D. Mr. Everett Nelsen reported on work which he had done on infections of the cribriform plate. He showed how the course of dyes may be traced from the nose to the sub-arachnoid space and the significance of this work. Mr. Charles Wilber reported on some new findings in the histology of the parotoid gland of the common toad. Both of these members are graduate assistants in the Department of Biology.

The Alpha Omicron Chapter is planning a field day to take place late in May. At it, business and pleasure will be combined. This field day was suggested by the receipt of the program of Sigma Chapter and will be patterned after it. Thank you Sigma.

Six new members were initiated May 7: Ruth Joanna Dornfeld, David Faust Eigen, Mary Anthony Keller, Leo Jules Tauber, Henry James Werner, Walter Zeit.

We thought that it might be of interest to the Biologist to know that the following members of the Alpha Omicron Chapter made reports on research at the Wisconsin Academy of Science Meeting:

Pohl, Richard W. (Introduced by Kenneth W. MacArthur) Milwaukee Public Museum. Preliminary Reports on the Flora of Wisconsin: Rhamnaceae, Vitaceae. 15 min.

Horner, Wilfred F. (Introduced by Paul F. Carroll, S.J.) Marquette University. Microscopic Anatomy of Lebistes Reticulatus. 10 min.

Neidhoefer, James R. Marquette University. Preliminary Report on the Histology of the Fresh Water Sponges of Wisconsin. 10 min.

Wilber, Charles G. Marquette University. Histology of the Parotoid of Bufo a americanus, the Common Wisconsin Toad. 10 min.

About 300 persons attended the Schleiden-Schwann Centennial Lecture given by the Rev. A. M. Schwitalla, S.J. The Chapter was honored by the presence of Dr. Anselm Keefe, editor of the Biologist, at this lecture.

The lecture was published in the January BIOLOGIST.

Robert E. Esser, *Secretary.*

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BOOK REVIEWS

The thumbnail sketches of current biological literature appearing in this section are not meant to be exhaustive or deeply critical. They aim to survey the rapidly growing field of biology. Naturally these reviews represent the candid opinions of various readers not necessarily those of members of the National Council, nor even those of the Editor.

ANCIENT ANDEAN LIFE, EDGAR L. HEWETT, *The Bobbs-Merrill Co., Indianapolis and New York, 1939. $4.00.*

More than ethnological importance must be attached to this, the completing volume in Dr. Hewett's worthy trilogy of studies on early Amerind history as world drama. The whole series is important because it not only attacks the subject from the culture history standpoint, but because it also is such excellent reading. Here, my friends, is a reputable scientist with a fresh, attractive and always interesting style. The major portion of this particular volume is devoted to the Andean world, under the subheadings of Andean Horizons, Andean Life Today, The Epoch of the Incas, Pre-Inca Times, and Andean Origins. Not the least interesting or thought-provoking is the third part of the book, Retrospection and Conclusion. Readers will thank the author for lifting the veil of the secret of his very successful accomplishments.

BATS, GLOVER MORRILL ALLEN, *Harvard University Press, Cambridge, 1939. $4.00.*

At last a thoroughly scientific publication has come to fill the gap in our knowledge of those curious creatures about which so many weird, untrue and useless superstitions still circle. In a very true sense, Dr. Allen's book may turn out to be the one to 'debunk' all the existing bat fables. If not, it will only be that the human race is jealous of its silly superstitions, and will not be convinced. In this very scientific work the bat is discussed as a matter of folklore and religious or superstitious use, as pets and as food, their habits, coloration, senses and sense-organs, geological and geographic distribution, social and breeding habits, their migrations and hibernation, and their enemies and parasites. The position of the author at the Harvard Museum of Comparative Zoology is sufficient warrant for the scientific accuracy of the work.

BETWEEN PACIFIC TIDES, EDWARD F. RICKETTS AND JACK CALVIN, *Stanford University Press, Stanford University, Calif., 1939. $6.00.*

No student of our West Coast biology can afford to be without this most valuable manual of the animal life which throngs the intertidal zone from Mexico to Canada. Other biologists and biological libraries everywhere will be enriched by its possession. Several unique characteristics single the book out among many in the same field. First among these is the ecological approach of the authors to their task, for this is not a taxonomy. Second is the happy thought to subdivide the work by numbered paragraphs, and to index them so. Third is the extensive annotated systematic index and bibliography, giving many a rare and comparatively unknown references. Fourth are the great profusion of really new and excellent photographic reproductions. All in all, this is a big six dollars worth of book.

BIOLOGY AND CHRISTIAN BELIEF, WILLIAM O. GREENWOOD, *The Macmillan Co., New York, 1939. $1.75.*

One of the most curious phenomena of the last three years is the increasing number of books, magazine articles, speeches and lectures, both by scientists of unquestionable repute as such and by ardent protagonists of even the most "metaphysical" religions, on the *rapprochement* between science and faith. Whether the working out of an intensely mechanistic philosophy is bound to end in social chaos or not is hardly within the province of a book reviewer to answer, but this book under consideration certainly is a good example of what we are discussing as could be wished for. To it the learned author has summoned the physicist, the chemist, the biologist and geologist, as well as the poet, and the philosopher. Since it is only an essay toward a more profound and complete whole, it cannot be taken as a final solution to the problem. Scientists with religious beliefs or learnings will welcome it. Scientists who have "junked" religion will think it funny, as usual.

THE BIOLOGY OF THE CELL SURFACE, Ernest Everett Just, *P. Blakiston's Son & Co., Philadelphia, 1939. $5.50.*

Biophysicists and biochemists will want to read this finished piece of biological research just as much as will cytologists and embryologists, whether or not they agree with the author's thesis entirely or only in part. Unless your reviewer is much mistaken Dr. Just's *magnum opus* is going to take its place along side many of the older works which have become land-marks in biological study. While he covers the whole field of developmental cytology, the author's main contention is that ectoplasmic behavior determines the cytoplasmic reactions that lie at the basis of nuclear activity in both normal and abnormal mitoses.

THE BIRTH AND DEVELOPMENT OF THE GEOLOGICAL SCIENCES, Frank Dawson Adams, *The Williams and Wilkins Company, Baltimore, 1938. $5.00.*

The gradual building up of a series of science-histories which stems out of the Locy type of book, has bestirred one historian to do justice to that fascinating past which lies behind the long history of modern geology. The result is a book which compares favorably with Agnes Arber's "Herbals". It is a book which no geology library, or for that matter, no science library can afford to be without. The treatment is interesting, and carries the story of the growth of geology down to our present times. It will repay study.

CARNIVOROUS PLANTS AND "THE MAN-EATING TREE," Sophia Prior, *Field Museum of Natural History, Chicago, 1939. $0.25.*

This, the 23rd Botany Leaflet in a series being published by the museum is a brief, non-technical account of the well-known carnivorous plants actually known to science, such as the sundews, the butterworts, the Venus flytraps, the pitcher plants and the bladder-worts. The descriptions and illustrations are all that could be desired is such a leaflet. What follows is an interesting attempt to de-bunk a lot of misinformation which periodically appears in the sensationally hair-raising sections of some of our Sunday papers. It must be seen to be appreciated.

CONSERVATION IN THE UNITED STATES, A. F. Gustafson, H. Ries, C. H. Guise, W. J. Hamilton, *Comstock Publishing Co., Ithaca, 1939. $3.00.*

Four members of the Cornell University staff, a soil technologist, a geologist, a forester and a zoologist, united to produce this book. Strangely enough, the style is uniform enough to be the work of one man, and the range of matter covered is the only indication that several authoritative writers have had a hand in its preparation. The work treats the subject under four main headings, conservation of soil and water resources, conservation of forests, parks and grazing resources, conservation of mineral resources, and conservation of wildlife. As a reference work the book is going to prove valuable, and as such should find its place on public and high school library shelves. As a textbook for college classes, however, it should fill a long felt need, since not only the material and its arrangement, but also the questions at the end of each chapter, make it a very practical adjunct to class work.

A CONTRIBUTION TO THE BIOLOGY OF NORTH AMERICAN VESPINE WASPS, Carl D. Duncan, *Stanford University Press, Stanford University, California, 1939. Paper $2.50, Cloth $3.25.*

This is an imposing monograph, so thoroughly referenced, and indexed, that it cannot prove less than the most necessary of reference works for entomologists. The first third of the work is devoted to a study of vespine morphology, the latter two-thirds is taken up with systematic considerations and some two hundred and fifty-five illustrations, nearly half of which are line drawings.

CRYSTALLINE ENZYMES, John J. Northrop, *Columbia University Press, New York, 1939. $3.00.*

The twelfth addition to the Columbia Biological series is devoted to the chemistry of pepsin, trypsin and bacteriophage. The results reported here were obtained in the author's laboratory at the Rockefeller Institute for Medical Research at Princeton, and revolve about the chemistry and isolation of bacteriophage and the proteolytic enzymes. While the theory and procedure are thoroughly treated, the average biochemist will find the Appendix, with its detailed description of the preparation and crystallization of the enzymes, most interesting and helpful in their work.

EDIBLE WILD PLANTS, Oliver Perry Medsger, *The Macmillan Co., New York, 1939. $3.50.*

A nature-conscious nation is beginning to appreciate its wild-life recreational facilities, and each closer contact with the out-of-doors is bringing more interest in the possible food or poisonous possibilities of the often strange and unknown plants the tourist meets in his travels. For such questions as thereby arise this book supplies the first practical and handy answer. While the introduction by Ernest Thompson Seton might be a prima facie evidence for an interesting book, the most casual of inspections will evidence the fact that the author has collected and carefully organized a tremendous mass of information which is not only actually useful but also nowhere else available.

THE EVOLUTION OF GENETIC SYSTEMS, C. D. Darlington, *At the University Press, Cambridge, The Macmillan Co., New York, 1939. $2.75.*

Here is the latest English word on genetics, from the pen of the head of the cytology department at the John Innes Horticultural Institution, and published as part of the Cambridge Biological studies. Based on an evolutionary framework, the material covers the entire field in genetics with that economy of space and verbiage which one expects from an Englishman, and marvels at when an American achieves it. There is one omission which is hard to understand. The author does not seem to be much impressed with the much-publicized work of Painter *et al* on chromosome structure.

ESSAYS IN PHILOSOPHICAL BIOLOGY, William Morton Wheeler, *Harvard University Press, Cambridge, 1939. $3.00.*

To have known William Morton Wheeler personally is a source of joyous pride to his circle of friends who lament his passing. Dr. George Howard Parker of the Harvard staff has still further put the biological world in his debt in that as a labor of love he has enabled countless others to share vicariously the joys of those privileged souls who knew Dr. Wheeler for the mental genius that he was. These philosophical essays embody Wheeler as the man, with all the rounded wisdom, the scientific acumen, and the humor, which made him the unique individual that he was. Some of the claims made for this work sound extravagant at first hearing. A careful and meditative perusal of this book will go far to convince the most captious that the claims are to a great extent understatements. It is to be hoped that some day, not too far distant, someone will edit and publish his diary as well. It bids fair to equal if not surpass many another famous works of similar nature.

FIELD AND LABORATORY TECHNIC IN WILDLIFE MANAGEMENT, Howard M. Wright, *University of Michigan Press, Ann Arbor, 1939. $1.50.*

While this planographed paper-bound volume is intended as a laboratory manual in a wildlife management course, it will prove instructive and useful in many other ways. The copious references no less than the helpful illustrations make it invaluable as an adjunct for almost any type of field course, whether it be in botany or zoology.

FORM AND CAUSALTY IN EARLY DEVELOPMENT, Albert M. Dalcq, *Cambridge, at the University Press, The Macmillan Co., New York, 1938. $3.50.*

This third volume in the very excellent series of the Cambridge Biological Studies, is an embryological study of development, as the author styles it, "with a complete spirit of objectivity, a philosophical climate which may be styled a pragmatic Organicism". As a result we have a fresh study of the problems of ontogeny based on a wide knowledge of recent work in embryology. The author is professor of human anatomy and embryology in the University of Brussels. The scope of the work has been wisely restricted to the embryogenic and organogenic processes in the Chordates, and to the precleavage and cleavage organization in the vertebrates. There is also a discussion of correlated problems dealing with the sea-urchin and some of the Ascidians. The book will be a necessary reference in embryological courses.

FUNDAMENTALS OF BIOLOGY, William C. Beaver, *The C. V. Mosby Co., St. Louis, 1939. $4.50.*

Something new in biological texts is here presented by the professor of biology at Wittenberg College. It is a rather compendious book of some 850 pages, with twenty-two chapters, dealing with the introduction and animals, ten treating on plants, and the balance devoted to such general biological features as heredity, variation, evolution, biochemical and biophysical phenomena, photosynthesia and applied biology. The treatment of the animals is comparative. Following a general survey of the entire kingdom, there are separate chapters devoted to integument, skeleton, locomotion, alimentation, circulation, respiration, excretion, nerves and sensation, reproduction and life cycles. Since the treatment of each group is quite thorough, and since each group is treated over and over again under each separate organ system, the student is constantly getting more and more thoroughly acquainted with the different animal phyla. By the time he has finished this work he really should know something about it, if "*bis repitita placet*" means anything.

FUNDAMENTALS OF PHYSICAL EXAMINATION, George G. Deaver, *W. B. Saunders Co., Philadelphia, 1939.. $2.75.*

This handy little volume neatly covers the multitudinous details required in giving routine physical examinations. While most such are common knowledge to physicians and not a few nurses, very frequently physical directors and educators are called upon to make or supervise their own examinations. That this can be done fairly well without medical aid, particularly by an experienced person, goes without saying. Students who are preparing for physical education careers should familiarize themselves with this book even if no courses are offered in the subject in the schools they attend. Not infrequently a shrewd physical examiner can perform a service of inestimable value to the examinee if he happens to be able to recognize signs of some incipient defects or weaknesses, and advises medical consultation.

THE FUNGI OF MANITOBA AND SASKATCHEWAN, G. R. Bisby, *National Research Council, Ottawa, 1938. $3.50.*

Mycologists in particular, and botanists in general, will welcome this very extensive and annotated list of over two thousand Canadian fungi, common to the midwestern provinces. It has been well said that perhaps never before has so wide an area been covered in a single volume. That the coverage is more than ordinarily complete as well as accurate may be judged from the calibre of Dr. Bisby's collaborators in this task: A. H. R. Buller, John Dearness, W. P. Fraser, and R. C. Russell. There are thirteen plates with a large number of good characteristic photographs of larger forms, particularly basidiomycetes.

GARDENING IN THE SHADE, H. K. Morse, *Charles Scribner's Sons, New York, 1939. $3.00.*

Anyone who, professionally or otherwise, has attempted to garden, has run into the thorny problem of what to plant on the north side of buildings, under trees and along high fences. Even reputable landscape architects and engineers have been known to bungle on this point. From now on, however, there will be little excuse for such problems and mistakes. In this very much needed volume a profluity of solutions are offered, and every gardener who has wrestled with this particular problem will be everlastingly grateful. Amateur home gardeners will want this book for other reasons, not the least of which are the many unusual suggestions for just as unusual combinations and groupings so effectively presented in the numerous excellent illustrations.

THE GOLDEN PLOVER AND OTHER BIRDS, Arthur A. Allen, *Comstock Publishing Co., Ithaca, 1939. $3.00.*

Twenty-seven bird autobiographies are here told in the first person by as many different interesting American birds, most of which are fairly familiar to the bird-lover. Seven of the stories are frontispieced by full-page George Miksch Sutton color plates, and there are some two hundred forty bird photographs by the author. Dr. Allen's position in the ornithological world warrants as kindly a reception for this the second volume of bird biographies from his pen as was accorded his first venture in the field.

HANDBOOK OF NATURE-STUDY, Anna Botsford Comstock, *Comstock Publishing Co., Ithaca, 1939. $4.00.*

Perhaps no nature-study book has been so popular or has had, in the short space of twenty-eight years, so many editions. This, the twenty-fourth has been considerably revised under the hands of many expert nature-lovers, chiefly from the Cornell University staff. Each of the 232 items discussed is followed by a group of review questions on the matter treated. The book ends with nearly fifty pages of bibliography, carefully annotated. It is difficult to see how any grade or high school teacher, particularly in natural history fields, could hope to get very far without the many helpful suggestions, hints, and directions here offered. The book has proven its value in years gone by. It should be even more valuable in its new guise now.

HUNTER OF THE CAVERNS, Harold O. Whitnall, *Thomas Y. Crowell, New York, 1939. $1.50.*

This is a prehistorical novel dealing with the life and experiences of a young member of the Cromagnon people. The narrative is interesting, at times lively, and the details are probably as true as any reconstruction of a long dead past could possibly be, since the author is head of the department of Geology and Geography at Colgate University. This would make a fine gift to youngsters of the late pre-adolescent period.

A LABORATORY INTRODUCTION TO ANIMAL ECOLOGY AND TAXONOMY, Orlando Park, W. C. Allee, V. E. Shelford, *The University of Chicago Press, Chicago, 1939. $2.00.*

One of the most complete laboratory manuals for a study of ecology thus far seen has just been issued by a group of Chicago scientists who need no introduction to the zoological world. The manual is expertly gotten together, well printed, stoutly bound in the new spiral-strap binding with hard covers, and contains not only an extensive series of laboratory problems, but also an equally extensive bibliography. Ecology teachers who are looking for a laboratory manual will do well to secure this one at least for reference.

THE LEGUMINOUS PLANTS OF WISCONSIN, Norman C. Fassett, *The University of Wisconsin Press, Madison, 1939.*

This new monograph comprehensively covers the entire field of the Wisconsin leguminosae. It is divided into chapters which treat of their distribution, their characteristics and distribution, and their epidermal outgrowths. There are also separate keys based on their flowers, their fruits, and their seeds, as well as an artificial key based on vegetative characteristics. The book will be a landmark for years to come as an ideal study of a single group in a single geographical area.

LIVING THINGS, HOW TO KNOW THEM, H. E. Jaques, *Mt. Pleasant, Iowa, 1939. Spiral binding $1.00; Cloth binding $1.80.*

Nature lovers who discovered the author's previous "How to Know the Insects" and found it useful, will be glad to know that a more comprehensive work covering the entire field of plants and animals has been issued in a similar convenient planographed volume. The volume opens with more than a hundred suggestions for nature study projects. Some of these are extremely interesting, others more or less stereotyped, but easily carried out with available materials—a factor to be considered in planning an elementary course. There is a small bibliography. There is also a 35-page key to the whole plant kingdom, and a 95-page key to the animal world. The index is combined with a glossary. Throughout the book there are thumbnail sketches to illustrate the reading matter.

THE MENOMINI INDIANS OF WISCONSIN, FELIX M. KEESING, *The American Philosophical Society, Philadelphia, 1939. $2.50.*

Anthropologists and Ethnologists alike will accept this monograph with pleasure since it deals with an unusual tribe of American Indians, whose manifest leaning toward Christianity and Americanization is practically wiping out all their ancestral customs. A recent visit by Dr. J. M. Cooper of Catholic University, secretary of the American Anthropological Association, proved that the tribe has in recent decades become so intermarried with other Indian or white groups that it is hard to find a pureblood left. That Dr. Keesing has summarised the available information is something to be grateful for.

NATURALISM, JAMES B. PRATT, *Yale University Press, New Haven, 1939. $2.00.*

The four lectures on naturalism, its meaning and origin, its relation to life and evolution, to the mind, and to morality and religion, constitute the Powell lectures on philosophy at Indiana University for this year. Since Naturalism has played such a prominent part in the philosophical outlook of so many scientists for so long, it may be wise for the naturalistic scientists of this later day to refresh themselves on what modern Naturalism really implies. Professor Pratt approaches his task with a breadth of understanding and a tolerance of outlook that is characteristic of the true philosopher.

THE ORCHIDS OF MICHIGAN, MARJORIE T. BINGHAM, CRANBROOK INSTITUTE OF SCIENCE, *Bloomfield, Michigan, 1939. $0.50.*

The Cranbrook Institute series of biological publications adds another practical handbook to its list in this manual of the Michigan orchids. It will be serviceable in other regions, particularly the states and Canadian Provinces bordering the Great Lakes region. The booklet is well illustrated with color and black-and-white photographic reproductions.

PERSONAL AND COMMUNITY HEALTH, C. E. TURNER, *The C. V. Mosby Co., St. Louis, 1939. $3.00.*

This is a new and considerably revised edition of a textbook on social and individual hygiene which has enjoyed and still does enjoy, a well-merited popularity. Since the author is still in the active occupancy of a chair in hygiene at M. I. T. his continuing experience in his chosen field lends to this new edition an air of matured practicality as well as a thorough up-to-dateness which should commend it to an increasing patronage.

PERSPECTIVES IN BIOCHEMISTRY, HALDANE, NEEDHAM AND OTHERS, *Cambridge at the University Press, The Macmillan Co., New York, 1938. $4.75.*

On the occasion of the seventy-fifth birthday of Sir Frederick Gowland Hopkins, founder and head of the Cambridge Biochemical Laboratory, thirty-one essays were gathered into an imposing 'fest Schrift' in his honor by past and present members of his laboratory. The result is an imposing cross-section of some of the best of modern British science in the fields of physiology, zoology, embryology, genetics, medicine, bacteriology, nutrition and botany. In their tribute to a far-seeing builder in the new science of biochemistry these authors have adopted an equally far-seeing objective, and have striven to indicate the most promising lines of advance in the fields which they survey. This is a book which biochemists can hardly afford to ignore.

THE PHYLUM CHORDATA, H. H. NEWMAN, *The Macmillan Co., New York, 1939. $3.60.*

Newman's well-known "Vertebrate Zoology" now comes to us in a version so drastically revised as to render it to all intents and purposes a new book. The author has wisely therefore renamed it and presents it with a hope that it will be as useful for a number of years as was its predecessor. It goes hardly without saying that this hope will be realized. Dr. Newman has come to be one of the outstanding American vertebrate zoology teachers.

Any new production from the ripening experience of such an educator is bound to be received with the respect and interest which it deserves. It is but trite to conclude that this revised edition of an old and well-favored work will keep its former friends and make new ones just as enthusiastic as the old.

PLANT AND ANIMAL COMMUNITIES, EDITED BY THEODOR JUST, *The American Midland Naturalist, University of Notre Dame, Notre Dame, Ind., 1939. $2.50.*

The proceedings of a conference on plant and animal communities was held late last summer at the biological laboratory in Cold Spring Harbor were published in "The American Midland Naturalist" last January, and now appears in book form. The original papers, ten in number, cover both plant associations and animal communities as well as some of the newer concepts which are finding place in the development of the ecological science. Evidently a thorough reporting service caught all of the discussion which followed the papers presented, since it is given in detail. Much of the discussion is as stimulating and fruitful as the original paper which it follows.

PREHISTORIC LIFE, PERCY E. RAYMOND, *Harvard University Press, Cambridge, 1939. $5.00.*

Following closely on the heels of Darrah's paleontology which was reviewed as the product of a Dutch publishing house in the last issue of this magazine, comes another and equally authoritative work from the pen of Harvard's Professor of Paleontology, Dr. Raymond. Evidently the American commercial publishing world which importunes people to write books to meet competition from other competing houses has in this case slipped a cog. This book is published by Professor Raymond's own university. As such it takes an immediate and singularly authoritative position. It does not take a long reading to understand why this should be so. This work is both scientific and literary. To cover the main points in a billion and a half years of earth-history in slightly more than three hundred pages is a feat of no small proportions, particularly when the cosmic story is so tellingly and accurately told.

PRINCIPLES OF HUMAN ANATOMY, C. F. DEGARIS, ERNST LACHMANN AND RALPH E. CHASE, *Lea & Febiger, Philadelphia, 1939. $2.50.*

This manual is intended for medical students in the process of dissecting the human cadaver. The techniques involved were probably introduced into American medical training by the late F. P. Mall, and from his laboratory were carried on into other medical schools by his students. These techniques were later transplanted from the laboratories of the University of Wisconsin and Johns Hopkins to the University of Oklahoma School of Medicine where the co-authors are at present putting them into practise. To the basic system the senior author has added certain other valuable teaching and anatomical directions, so the present work should constitute a fine introduction to anatomical study or research.

RANCIDITY IN EDIBLE FATS, C. H. LEA, *Chemical Publishing Co., 1939. $4.00.*

Anyone interested in the chemistry of the fats will welcome this new English book, giving as it does an account of the present state of our knowledge concerning the development of rancidity in fats and fatty foods. Since this work is a synthesis of present ideas and research results the bibliographies appended to the chapters are unusually complete. Commercial laboratories and instructors in all phases of food or fat chemistry will want this book for reference.

REPTILES AND AMPHIBIANS, W. P. A. PROJECT WRITERS, *Albert Whitman & Co., Chicago, 1939. $2.25.*

One of the most interesting picture-books on animals to appear in recent years has been produced by a Federal Writers' Project in the W. P. A. in New York. It deals with what is, perhaps to most people, the least understood, most feared, and always the most challenging animal group in nature. The text is popularly written, but is scientifically reliable. The material has been kept within the range of the understanding of the average reader, but many of the forms pictured

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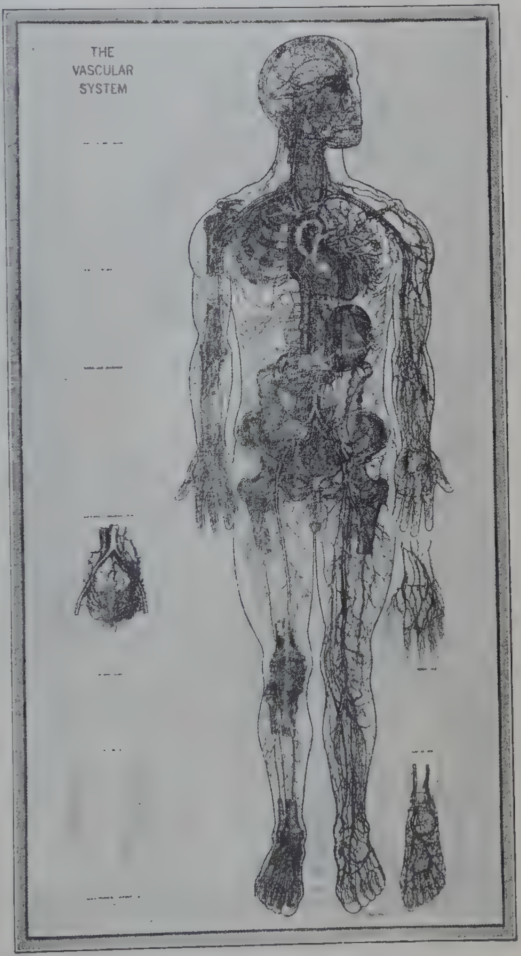

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and described certainly are beyond his wildest imagination. Such, for instance, are the gavials, the tuatara, the monkey tailed skinks, the tegu, the Komodo Dragons, the rhinoceros iguana, the spiny tailed lizards, and the Surinam toads.

SCIENCE IN PROGRESS, *Edited by* George A. Baitsell, *Yale University Press, New Haven, 1939. $4.00.*

Based on the National Sigma Xi lectures of 1938-39, the ten papers included in this volume range from the atom to elephant metabolism. Following an introduction by Dr. Harlow Shapley, Harvard astronomer, in which he expresses the hope that the success of this volume will prompt a demand hereafter for a similar annual publication, there are papers by Ernest O. Lawrence, Harold C. Urey, W. M. Stanley, L. O. Kunkel, Karl E. Mason, R. R. Williams, Edgar Allen, Theophilus Painter, E. Newton Harvey, and Francis G. Benedict. As one looks at this rather imposing list of names one hopes that what they have to offer is not "watered down" but straight from the shoulder science. A brief perusal of the book forces the conclusion that ones hopes have been realized. Perhaps this is what we should have expected from Sigma Xi, but there has been so much well-meant but trivial science popularization even by great men that it is relieving to find the authors resisting the trend.

THEORIES OF SENSATION, A. F. Rawdon-Smith, *Cambridge at the University Press, The Macmillan Co., New York, 1938. $2.75.*

Another publication in the Cambridge Biological Series under the editorship of Dr. C. H. Waddington, the volume under consideration, although titled "Theories of Sensation," is devoted almost entirely to a summing up of present and often not too thoroughly agreeing theories on sight and hearing. The author has quite impartially surveyed the field, often added his own conclusions, and in so doing has produced a volume which is extremely interesting, not to say challenging, to the physiologist, and the philosopher, at one and the same time.

THIS EARTH OF OURS, Victor T. Allen, *The Bruce Publishing Co., Milwaukee, 1939. $3.50.*

This latest contribution to the Science and Culture Series, under the editorship of Joseph Husslein, S. J., is a popular survey of geology. As such it offers no challenging new theories, in fact it theorizes seldom if ever. Designed to offer the layman an interesting and intelligible survey of modern geological thought, it accomplishes that purpose by one of the most attractive formats we have seen in months. The book is replete with illustrations, most of which are absolutely new to geological literature, and appear on an average of one to each page and a half of text. This latter is clear and concise enough for an elementary geology textbook. There are adequate bibliographies, charts and diagrams. All in all, it is a book which should be in every public or high school library at least. Freshmen geologists might find it a handy reference for review.

WATER—WEALTH OR WASTE, William C. Pryor and Helen S. Pryor, *Harcourt Brace & Co., New York, 1939. $2.50.*

The joint authors of a long series of popular childrens' books on modern invention and industry now turn their attention, and their talents to something of greater interest to grown ups. Their first attempt in this new field is devoted to nature's greatest necessity. The book will be interesting, particularly to students of high-school project age, and to their parents. It has no bibliography, is of no particular research value, but has a rather unusually interesting group of really fresh illustrations. It would make a good gift book for an embryonic hydraulic engineer.

WHAT SHELL IS THAT? Percy A. Morris, *D. Appleton-Century Co., New York, 1939. $2.25.*

A new addition to the handy pocket manuals which were so common, even on the ten-cent store book shelves a few years back, now appears in a more serviceable and scientific guise with stout crash covers, a profusion of excellent photographs (instead of the badly registered off-color color-plates of the cheaper editions). The person who has a hobby, or a scientific interest, in shell collecting, will want to have this practical and helpful manual to carry along on his rambles.

WHAT SNAKE IS THAT? ROGER CONANT AND WILLIAM BRIDGES, *D. Appleton-Century Co., New York, 1939. $2.00.*

Something new in reptilian taxonomy made its appearance when this Conant-Bridges book came out. Frankly professing its purpose to be of service to two kinds of people, those who don't know anything about snakes and want to avoid the dangerous ones, or for those who know something about them and want to be able to identify them without recourse to heavy tecnical works. For both of which purposes one could hardly imagine a more suitable publication. The keys are simple and clear. The illustrative material outdistances anything this reviewer has ever seen for practicality and clarity. To say that anyone who lives or works in "snaky" regions and has not thoroughly familiarized himself with the reptilian habitants of his neighborhood, is penny-wise and pound-foolish not to buy this manual, may sound like exaggeration. Your reviewer pleads guilty and wishes a suspended sentence until you've seen this handy book.

WHENCE? WHITHER? WHY? AUGUSTA GASKELL, *G. P. Putnam's Sons, New York, 1939. $2.50.*

This is the last work of an author whose symposia on evolution and on genetics have previously been favorably reviewed in the BIOLOGIST. As such it challenges our interested attention. It opens with a section devoted to the more basic problems of philosophy. This is followed with a section devoted to the philosophical implications indicated in the book's title. The last part of the book deals with the congruity between a science-based philosophy and Christianity. The whole is unusual. Liberals will not like this book, or will find it very funny to their sophisticated taste. Old fashioned Christians or Jews with more conservative ideas will find that their own thinking often runs parallel to the author. That there is a place for both in modern science no wise educator, scientist or student will deny.

THE WORLD OF PLANT LIFE, CLARENCE J. HYLANDER, *The Macmillan Co., New York, 1939. $7.50.*

The penny-thriller sections of the cheaper grade of Sunday journalism will have to be on their guard from now on. Dr. Hylander has put into the hands of the average reader a new and somewhat unusual tone which covers about all there is to know regarding the commonest and the most uncommon plants of this country. It is not a textbook in general botany or a taxonomy. From bacteria to composites he has treated the wealth of American plant life from the side the layman wants it treated, the visible and appreciable side. There are no biophysical or biochemical details, no complicated internal structures or life histories, no advanced sections on physiology and morphology. In this work he presents a book which should be very good reading for the generally interested in plants, for the high school and public library patron. The book is profusely illustrated, both with full-page photographs and sketches.

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